MARINE REVIEW.

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Condition of American Channel just above the Sault.

On a recent down-bound trip from Lake Superior with ore the steamer Kaliyuga and consort Fontana of Cleveland found considerable difficulty in getting through the American channel, just above the St. Mary's Falls canal. As this channel is one of the most important on the entire chain of lakes, Capt. A. R. Robinson of the Kaliyuga was asked to make a few notes of the accident in order that the matter might be taken up with Col. G. J. Lydecker, the United States engineer in charge. Capt. Robinson's report was in substance as follows: "On April 28, while passing the light-ship at the middle shoal above the American canal, and while on the canal ranges, we rubbed the bottom hard. Our consort, the Fontana, also rubbed bottom. We were drawing 17 feet 3 inches. The Fontana was drawing 16 feet 9 inches. Until the bottom is cleaned out at this point, we will be compelled to take the Canadian lock, as it is not safe for boats drawing over 17 feet of water to go down the American side. Several vessels have struck at this point thus far this season. I hope some steps will be taken to remove this obstruction as soon as possible, as we were compelled to take the Canada side last season on account of the miter sill at the guard lock, and now we have this season an obstruction even more dangerous, for should we fetch up our consort would very probably run into us, as we tow with a very short line in places of this kind, in order to keep the line from chafing bottom."

This note was forwarded by Capt. Geo. P. McKay of the Lake Carriers' Association to Col. Lydecker, who answers as follows: "Your note regarding the present channel of west approach to the American Sault canal, stating that the same is not safe for vessels drawing over 17 feet, and suggesting that the shoal portions be removed, is at hand. This channel was only improved to depth of 17 feet at mean stage of water, and for this reason vessels loaded to that depth found bottom during the low stage that has prevailed this spring. It cannot be deepened materially without extensive dredging, but it is expected that 300 feet in width of the new deep-water channel, on which work is in progress, will be marked and open to navigation by the middle of next month. In the meantime the stage of water is steadily rising, and the present condition of the old channel is slightly better than it was in the latter part of April when the accident to which you refer occurred. The water opposite the light-boat and red buoy is a little better 50 feet south of the range than immediately on it."

Bridge Builders Injure their Case.

Officials of the Lake Carriers' Association are assured that the Detroit river bridge bill recently introduced in the United States senate will not be considered during the present session of congress. The Grand Trunk and Wabash railways are back of this latest bridge proposition. Senator McMillan of Michigan introduced the bill by request and was not specially interested in it. It is understood that the great bulk of shares in the new company is held by the Grand Trunk and Wabash officials. General Manager S. T. Crapo of the Flint & Pere Marquette Ry. Co. and the Messrs. Joy of Detroit have a few shares of the stock. The present capital of the company is $2,000,000, which is said to be about half the amount required for the proposed bridge. This bill, alike to the one presented in Washington some time ago by the Michigan Central company, provides for two piers in the river. The main span of the bridge according to the Michigan Central bill was to be 1,100 feet; in this bill it is 1,200 feet. The locations proposed by the different railway companies, presenting different bills, indicates very clearly that what will suit one will not suit the other. Ostensibly the bridge in either case is to be for the use of all railways, but the question of location is so important in this regard that the railway interests have injured their case very much by the introduction of this second bill. It proves that two interests are seeking permission to bridge the river at different points, and it is proposed to spend $4,000,000 in each case, or $8,000,000 in all, which is an amount sufficient to construct a bridge that would be satisfactory to the vessel owners.

Lake Freight Matters.

Most of the vessel owners have concluded that there is little probability of any material change in lake freights for some time to come; in fact, there are few who look for any change of importance in the market throughout the summer months. This opinion is prompted by the very large amount of tonnage that is tied up to contracts. Although the rates are low—20 cents on coal to Lake Superior ports and 50 cents for return cargoes of ore—the situation is such that an enormous movement in lines other than coal and ore would be required to cause an advancing market. In these two lines the shippers are so well provided with contract vessels that they can afford to work along slowly on extra cargoes until such time as it may be found necessary to increase the already large volume of business. On the other hand there will very probably be no disposition to reduce the present rates, even under a steady surplus of tonnage, as such a move would eventually result to the disadvantage of the shippers. Only the large vessels can make money at the present rates, and to reduce them would certainly cause a tie-up of the ships of medium class.

One of the big tows, now bound to Lake Erie ports from Ashland, is moving 14,573 net tons of ore. The vessels are the wooden steamer Caledonia and steel consorts Amazon and Polynesia, owned by James Corrigan of Cleveland. The Caledonia usually tows only one barge, but she has the two "big fellows" this trip, on account of the accident that befell the steamer Bulgaria on Lake Superior.

To Excel in Speed any Liner now Afloat.

The German steamship companies are evidently determined to lead all competitors in the Atlantic passenger service. The order recently placed by the Hamburg-American company with the Vulcan company of Stettin calls for a vessel that is to excel in speed the North German Lloyd Co.'s Kaiser Wilhelm der Grosse and Kaiser Friedrich. This means also that the new vessel will be very much faster than the Oceanic of 704 feet length, building for the White Star company at Belfast, as the White Star liner is not expected to develop a speed of more than about 21 knots in regular service. Engineering of London, referring to the order just placed with the Stettin builders by the Hamburg-American company, says:

"The trial-trip speed guaranteed for the new vessel is 23½ knots on the measured mile, and 23 knots on the Atlantic. The vessel will be between 680 feet and 690 feet long over all. The White Star liner Oceanic, now building, is 704 feet over all. The North German Lloyd ship Kaiser Wilhelm der Grosse is 625 feet, and her consort, Kaiser Friedrich, 580 feet. The Campania and Lucania are 622 feet long. The breadth, however, will not be much greater than these ships, being 66 feet 6 inches; while the Kaiser Wilhelm der Grosse, although over 60 feet less in length, is only 6 inches less in beam. The new ship is therefore exceptionally long for her breadth. The twin-screw engines, which are to develop a collective horse power of 36,000 indicated, are to be of the quadruple-expansion type. The two low pressure cylinders will drive the second and third cranks, the forward and after crank being actuated by tandem cylinders. This arrangement, it is believed, will give the best balancing arrangement, and the least twisting strain on the crankshaft. The boiler installation will not differ materially from that in the Kaiser Wilhelm der Grosse, which was built by the same firm at Stettin, but for the competing company, the North German Lloyd. There are in her twelve double-ended and two single-ended boilers; but the boilers in the new ship will be worked under Howden's system or Ellis & Eaves' design of artificial draught.

"The North German Lloyd and Hamburg-American jointly have also ordered four new twin-screw steamers to be built at the Vulcan company's works at Stettin, to be about 500 feet long between perpendiculars, or about 520 feet over all, and of 60 feet breadth. They will be fitted with two sets of four-crank quadruple-expansion engines, and three double-ended and three single-ended boilers, to develop 7,000 indicated horse power under ordinary conditions, which will give them a speed of 15 knots. They will, however, be fitted with a system of induced draught, which, when brought into requisition, will enable the engines to develop 9,000 indicated horse power, giving a speed of 16½ knots, which will be of great advantage for merchant cruiser work."

Great Visions of the Future.

It would seem from an interview recently published with Engineer Geo. Y. Wisner of Detroit, member of the United States deep waterways commission, that the commission will struggle over an effort to estimate the value to shipping of the proposed ship-canal from the lakes to the Atlantic. This commission has $225,000 at its disposal for the coming year, in addition to $150,000 already expended, so that an elaborate report is expected from them about a year hence.

"It would be a simple matter," Mr. Wisner says, "to submit an estimate of the value to shipping of the proposed works for which we are making estimates if conditions were to remain as they are at present, but we must also take into consideration the development of lake shipping which will follow the opening of a deep waterway to the sea. The war is the chief cause of uncertainty. I am of the opinion that our navy has come to stay, and that from now on we will be building more warships all the time. These can be built on the great lakes much more cheaply than on the coast and they will be safer, as the enemy cannot reach them if war should suddenly break out. The development of a navy is sure to be followed by the development of a great merchant marine, and the ships for this will also be constructed on the lakes if there is a way to get them to the ocean. Another thing that must be considered is that England has been getting her metals from Spain. The supply there is getting so low that the handling is expensive, and she must find another supply. It is expensive to get ore in Sweden, and if there is an opportunity to ship ore from the lakes to England without unloading she will be sure to look here for her supply. I feel satisfied that all these changes will follow the opening of a deep-water route to the Atlantic. And it is almost an impossibility for us to estimate the benefits of such a work."

Detroit River Improvements.

Amherstburg, Ont., May 25.—Probably before this note reaches readers of the Review, a set of ranges will be erected below Amherstburg on the point of Canadian mainland, just below the lower end of Bois Blanc island. These ranges will be lighted for the purpose of assisting vessels as they pass through the channel between Bois Blanc and the Amherstburg shore. The ranges were put up for the guidance of the dredging contractors who are to clean up a cut of 400 feet width and about 21 feet depth through this reach. This means the removal of New York and Boston shoals, and it means also that towards the close of the present season the 20-foot channel that has been so long talked of will not be obstructed by shoals at Ballard's reef and a few shallow spots in the vicinity of this town. The new cuts will not, of course, be of full width this fall, but it is expected that enough will be done to permit vessels to pass through them.

CANADA'S UNPROFITABLE CANALS.

AN EFFORT TO SHOW BY STATISTICS THAT THE MOST UNSATISFACTORY PART OF THE COUNTRY'S INVESTMENT IS THAT APPLIED TO CANALS--THEY ARE OF ADVANTAGE MAINLY TO UNITED STATES FREIGHT AND UNITED STATES VESSELS.

There is no country in proportion to its population and resources that has expended so liberally as has Canada in the construction of railways, canals and other conveniences to cheapen the transportation of her commerce; and it is to be deplored that much of this expenditure has been used in ways that have not furthered this object, but have been diverted to channels that have not been conducive to the common interests of our citizens. This expenditure was liberally indulged in by the several provinces prior to confederation, and since then it has gone on from year to year with increasing liberality and without any abatement to the present time. Municipalities have vied with municipalities in granting bonuses, province with province in granting subsidies on their own behalf and in securing appropriations from the dominion to be applied in what is considered their several interests for the purpose of cheapening the facilities for the transportation of commerce, until we have in several localities an expensive canal, constructed and controlled solely by the government, with two or three lines of railways, heavily subsidized by the government, laboring in competition or by pooling rates to carry our commerce to market—the maintenance of the many lines necessitating an increase instead of lessening the cost of transportation, as desired.

These expenditures have been popular from a party point of view. If the electors were possessed of all the facts in connection therewith this might be changed. In the 16,387 miles of railway in Canada up to June, 1896, there is invested about $900,000,000, and of this amount over one-third, or about $315,000,000 (allowing $2 an acre for the unsold land grants—a low estimate) has been contributed by our dominion, provincial and municipal governments. About $60,000,000 of this is invested in roads that are owned and operated by the dominion government, and the balance is donated to the various railway corporations. Notwithstanding these liberal donations to railways, it costs Canadians more for carrying their freight than it does the people of most other countries, while the earnings on the capital invested is small, being only 1.72 per cent. The fact is that railways have been constructed beyond the requirements of our carrying trade. What is required at present is not more railways, but more freight, lessened rates and greater earning power for the railways so abundantly existing. However, the railway traffic is growing rapidly, and, with the curtailment of further construction until the requirements of our trade demand it, these desirable results may soon be obtained.

For many years after the Welland and other of the older canals were first constructed they were of great value to the carrying trade of our country, but since railways have come into general use their value is not so apparent, and it would now appear that the transportation of our commerce would be as satisfactorily and more economically done if the railways were solely relied on for its accomplishment. Statistical facts show that at the present time the most unprofitable part of our country's investment to facilitate our carrying trade is that applied to the construction of canals. The total revenue from canals for the year 1868, when the capital invested was less than $21,000,000, was $403,877. For 1896, when the capital invested had increased to over $80,000,000, the revenue was only $339,539. For the eighty millions thus invested there is no return, and, in addition to the revenue derived therefrom, there is required an expenditure of over $350,000 to keep them in operation; and while the investment and cost of maintenance is increasing from year to year the proportionate amount of freight carried is growing less, and a large percentage of the use of our principal canal is for the benefit of United States trade. Our railway and canal statistics have not been fully or satisfactorily furnished through the published governmental returns, but such as are available are sufficient to make clear the growing utility of our railways and the decreasing value of our canals. For the year 1875 our railways carried less than six million tons of freight; this has steadily increased until in 1896 it had reached over 24,000,000 tons. For the year 1896 1,231,903 tons of freight passed through the Welland canal. For 1895, when the commerce of our country had about doubled, and the canal had been enlarged at over twice the original cost, the total tons of freight passed through was only 869,595, and 469,779 tons of this was United States freight passing from United States to United States ports, and probably half the remaining was United States freight consigned to Canadian ports and carried in United States vessels, for transhipment abroad. So of this amount there is not more than 200,000 tons of purely Canadian freight, such as we are interested in promoting, for its transportation.

Special stress has been laid on the value of our canals for carrying our grain to the seaboard, but when considered from this point of view they will not be found more valuable than for that of general merchandise. For the year 1895 there were not over 150,000 tons of grain and vegetable foods of Canadian freight carried through our canals, but there were over 380,000 tons of these articles of United States freight carried through the Welland canal for that year. There were 458,000 tons of grain and vegetable foods, the products of Canada, exported during the year 1896, and our railways carried 4,342,665 tons of these goods for that year. So it is thus shown our canals serve a very unimportant part in aiding the transportation of these staples, and in no way commensurate with their great cost to the country. These statistical facts in favor of railways are not peculiar to Canada. In the state of New York, where conditions are very similar to this country, the carrying trade is rapidly being absorbed by the railways. For the year 1869 47 per cent. of the traffic of that state was carried through canals. This has since decreased, until in 1895 only 9 per cent. is so carried. For the year 1896 there were over 27 million tons of freight carried by our railways and canals. Of this over 24¼ million tons were carried by the railways, and about 2¾ million tons through canals. When we deduct from that passing through canals that portion which passes from United States to United States ports, and that which passes from United States to Canadian ports for transshipment abroad, and make allowance for that passing through two or more of our canals and credited in our statistics in duplicate to each, it will be found that the freight passing through our canals in which Canadians are interested in providing transit will not exceed one and a half million tons.

To arrive at the yearly economic value of our canals we will require to ascertain the value to the trade and the cost to the country of this million and a half tons of freight that now passes through them. We have railway facilities to carry freight, practically to every point to which canals carry it, and it is simply a matter of convenience and economic expediency as to whether this freight is carried by rail or by boat. Our government statistics do not give the cost to the shipper of the transportation of this canal freight. The freight carried by the railways costs $1.33 a ton. But a considerable percentage of this is carried from ocean to ocean and other long distances, and probably that carried within the range of our canal traffic would not exceed $1 a ton. So we may conclude that the boats, to secure the trade, will have to carry it at a lower rate. Seventy-five cents a ton would probably be a fair approximation of what it costs for carrying this freight through the canals, thereby effecting a saving of 25 cents a ton, as against its carriage by rail, which would effect a gain to shippers for this year of about $375,000. The cost of maintenance of our canals is—allowing for interest on capital invested and excess of cost of general maintenance over revenue—over $3,500,000 a year. This amount is expended that the carrying trade of our country may be benefited to the extent of about $375,000. This is a fair statement of the economic value of our canals for the above-mentioned year. While some approximations were necessary to arrive at this result, on account of deficiencies in government statistics, these figures are well within the mark. It is difficult to see how the result could be avoided, for if the tolls were increased the tonnage passing through, and consequently the revenue, would be more than correspondingly lessened.

The greater part of the traffic that was intended to come through the Welland and St. Lawrence canals was from the upper lakes, but circumstances have so changed that only a small portion of this trade comes, or can be expected to come, by this route. The bulk of United States trade—for which this route is better situated than for Canadian trade—finds a shorter and more profitable way to the seaboard by being transshipped by rail from Buffalo to New York. Although Canada's policy seems to have been in great part to provide a cheap passage for this freight, for which no proper equivalent has been exacted in the way of tolls, only a comparatively small portion has gone this way. While we should be interested in providing and improving the transportation facilities for our freight in every prudent way so that Canadian produce can reach the markets of the world at the cheapest rates, it should be our policy to conserve these facilities for the benefit of our own produce, which has to compete in the world's markets with the products of the United States, to which so much favor has been shown in the past. The United States deep waterways commission is good enough in its report to advise Canada how her canals can be enlarged to further suit the convenience of the United States trade, and there are some Canadians who are advocating this enlargement, which can only have the same object to serve; but the true interests of Canada do not require that a dollar of Canadian money should be expended to further the transit of United States freight. The freight carried on the great lakes by the United States is probably as 20 to 1 of Canadian freight. While that country has expended $12,000,000 in improving these waterways, Canada has expended over $50,000,000.

The Canadian produce from the west for transshipment abroad, instead of coming around the lakes via the Welland and St. Lawrence canals, has taken the more direct route, by rail from Owen Sound and other northern ports, to reach the ocean vessels. When we consider the disadvantages of distance from Georgian bay via Lake Erie and canals to Montreal, the time required to cover the distance, with delays of lockage, etc., that it can only be used seven months in the year, and compare it with the short, quick transit by all rail available every day in the year, and by transshipment from Parry Sound, Owen Sound and other ports, it is not surprising that the bulk of our freight from the west is being carried by this more direct route. Practically all the produce of Ontario has to be loaded on cars that are on lines of rail in direct communication with Montreal and other ports of exit, and transshipped to boats, if our waterways are to be used for its transport. This has not been found practical to any extent, and very little of Ontario's produce has been transported in this way. Even if our waterways were made to accommodate ocean vessels, these results could not be materially changed.

All the facts procurable from available statistics go to show that the construction of deep waterways to promote the carrying trade of our country can only be—under present conditions—profitably engaged in when they can be constructed in the natural trade channels without materially increasing the distance, and with a minimum of lockage. The route from Lake Superior, which lies in the direct channel of trade for a vast amount of traffic from the west, where many hundred miles of deep waterways can be connected by a single lockage, can be turned to profitable account. But when such waterways are out of the direct channels of trade, materially increasing the distance, and when the delay and expense connected with a numerous lockage have to be taken into account, such waterways cannot be made to compete with our modern railways.

The necessity of maintaining and extending our system of canals seems to have been accepted in the past, without question, as the settled policy of our country. The transition from the time when they furnished valuable aids to our carrying trade to when several of them became a useless charge on our country was gradual; and our administrators, no doubt, hoped that these conditions might mend. However, it is unfortunate that large amounts are still being expended in this line, with no hope of profit, but with the certainty of adding further useless burdens on our country for their maintenance. But when the people become fully informed regarding the nature of these investments it will be easy for those charged with the administration of our affairs to remedy these defects.—Wm. Armour in Toronto Globe.

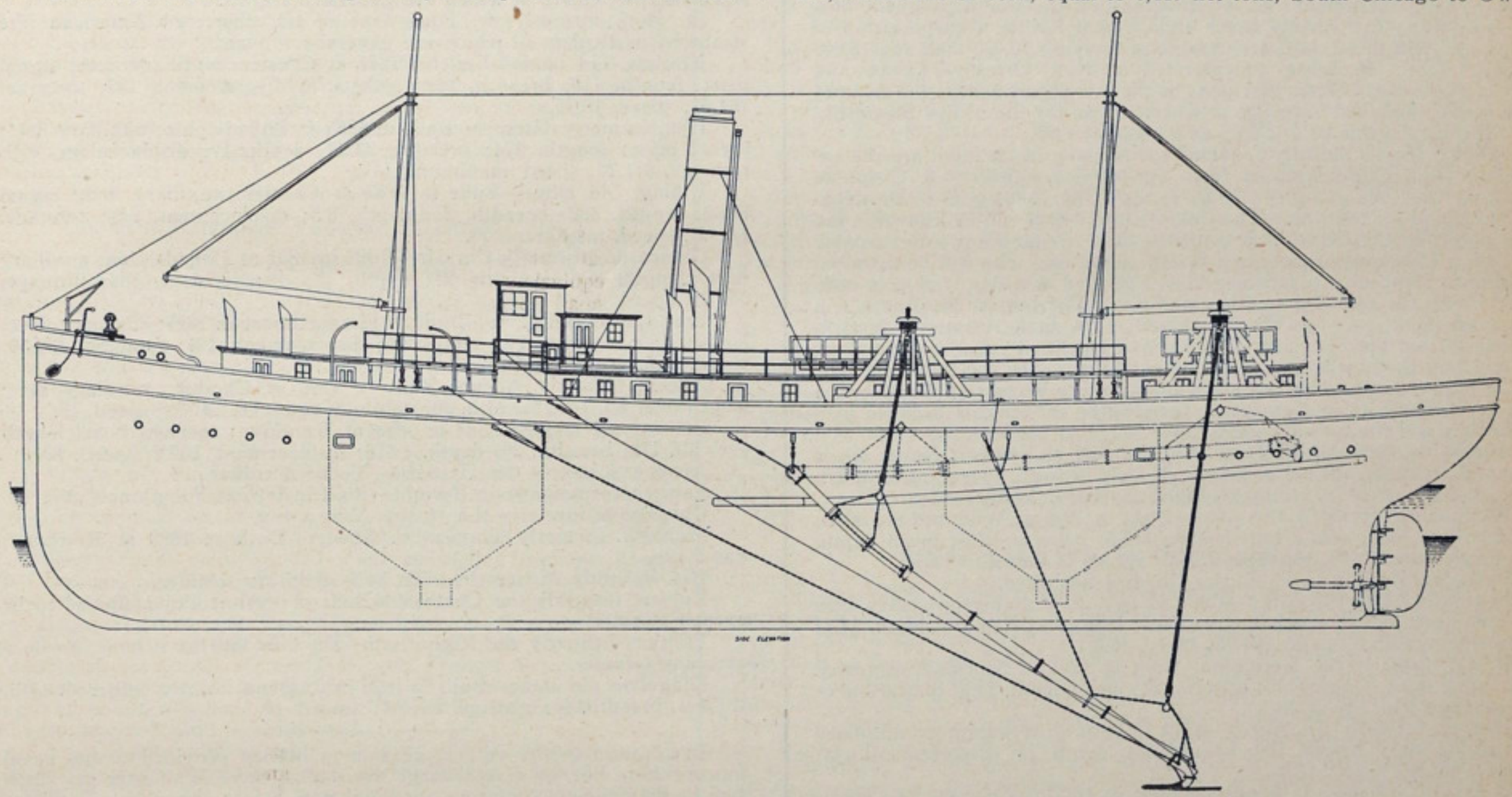
Home Seekers' Excursion via Nickel Plate Road.

Special excursion tickets for home seekers' to designated points northwest, west and southwest, also to designated points in the south, are offered via Nickel Plate road, June 7th and 21st at lower rates than via other lines. Ask agents. No. 55, June 20.

A New Sea-going Dredge.

Major F. A. Mahan of the United States engineer corps was to have opened bids at Montgomery, Ala., on Saturday last for the construction of a sea-going hydraulic dredge for service in the harbor at Pensacola, Fla., but it is understood that none of the bids were fully in accord with the specifications and that a contract will not be let for the present. The dredge is to be in most respects similar to others that have been built for river and harbor work in the south by the Bucyrus company of South Milwaukee and other dredge building concerns. An outboard plan of the vessel is presented herewith. The hull is to be of wood, 180 feet between perpendiculars, 37 feet molded beam and 22 feet hold. Dredges of this kind are provided with quarters for officers and a full working crew. In this vessel there will be three deck houses, in which arrangements for the crew will be fully equal to those of the best freight carriers. In the matter of equipment, such as steering gear, windlass, capstans, anchors, etc., a dredge of this kind is also the equal of modern freighters.

The dredge is to be propelled by twin screws of 7 feet diameter and 11 feet pitch. Each screw will be driven by a vertical inverted, direct-acting engine of the compound type, with a surface condenser. The diameter of the high pressure cylinders will be 16.5 inches, that of the low pressure cylinders will be 30 inches. The stroke of all pistons will be 30 inches. The engines are to be workd under a maximum boiler pressure of 100 pounds per square inch and generally at a speed of 135 revolutions per minute. The steam distribution valves will receive their motion by means of Stephenson's double bar links and eccentrics, the links to be connected to suitable reversing gears which may be worked by either hand or steam power. The cut-off valves of both the high and low pressure cylinders are to be of the Meyer's type. The condensers for the engines will have a cooling surface of 1,600 square feet, measured on the outside of the tubes. They will be of the Wheeler type with direct-acting air pumps and centrifugal circulating pumps. These condensers will take also the exhaust steam from the driving engines of the dredging pumps. Forgings are to be largely of steel.



SIDE ELEVATION OF HYDRAULIC SEA-GOING DREDGE TO BE BUILT FOR GOVERNMENT ENGINEER DEPARTMENT.

The dredging plant will consist of two complete and independent sets of hydraulic dredging machinery as manufactured by Joseph Edwards & Co. of New York. There will be two special cataract dredging pumps, having suction and discharge openings of 15 inches in diameter. The shell or casing of each pump will be 40⅝ inches in diameter and 22 inches deep. Each pump must be able to deliver, when running at the rate of 200 revolutions per minute, 9 cubic yards of sand mixed with 7,300 gallons of water at a maximum height of 16 feet above the surface of the water. Hoisting engines, feed pumps, fire pumps, bilge pumps, ventilator engines, auxiliary condenser and other auxiliaries are also to be provided. The boilers, two in number, are to be of the horizontal return fire-tube type, 13 feet 6 inches in diameter and 11 feet long, and built for a working pressure of 115 pounds. Each boiler will have three corrugated furnaces of about 3 feet 9 inches inside diameter; a total heating surface of not less than 1,848 square feet; a total grate surface of not less than 66 square feet; and a total steam surface of not less than 250 cubic feet.

If William T. Sampson and Winfield Scott Schley are not competent to command let them be relieved without further delay and other officers assigned to command their fleets. If they are competent, they should be given full liberty of action without interference from war boards or paper strategists. If the gentlemen who assume direction from Washington are more competent, put them in command of the fleets and place the responsibility on them. Admiral Dewey has shown what can be accomplished by bold and independent action. Does anyone believe that he could have accomplished what he has if he had been at the end of a wire running into the navy department?—Army and Navy Journal.

Cargo Records—Lake Freight Ships.

The 6,500-ton mark (net tons) has not as yet been reached by any of the big lake carriers, although the Owen Sound cargo of the steamer W. R. Linn was within 4 tons of that amount. It is quite probable that more than 7,000 tons will be moved in a single cargo before the season is at an end. The stage of water has been increasing a little and several of the largest carriers are yet to leave the ship yards. The Detroit steamer Senator took a cargo of 182,000 bushels of wheat out of the Chicago river, a few days ago, and it was probably the most valuable grain cargo ever moved on the lakes. This grain, insured at $1.75 a bushel, was worth $316,483. But the load was by no means in the record list as regards weight. The corn record is 232,000 bushels and the wheat record 210,539 bushels. Following is the corrected list:

Iron ore—Steamer W. R. Linn, owned by C. W. Elphicke and others of Chicago, 5,638 tons gross, or 6,314 net, Escanaba to South Chicago; schooner Amazon, James Corrigan of Cleveland, 5,631 tons gross, or 6,307 net, Duluth to South Chicago, draft of 17 feet 1 inch; steamer Empire City, A. B. Wolvin of Duluth, 5,622 tons gross, or 6,296 net, Two Harbors to Cleveland, draft of 17 feet 2 inches.

Grain—Steamer W. R. Linn, C. W. Elphicke and others, Chicago, 232,000 bushels of corn, equal to 6,496 net tons, South Chicago to Owen Sound; steamer Andrew Carnegie, Wilson Transit Co. of Cleveland, 230,000 bushels of corn, equal to 6,440 net tons, South Chicago to Owen Sound; steel schooner Australia, James Corrigan of Cleveland, 210,539 bushels of wheat, equal to 6,316 net tons, Chicago to Buffalo; steamer Andrew Carnegie, Wilson Transit Co. of Cleveland, 332,100 bushels of oats, equal to 5,313 net tons, Manitowoc to Buffalo.

Coal—Schooner Polynesia, James Corrigan of Cleveland, 5,654 net tons of bituminous, Cleveland to Duluth, 16 feet d aft; steamer Carnegie, Wilson Transit Co. of Cleveland, 5,369 net tons of bituminous, Cleveland to Duluth.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store in regular elevators at the principal points of accumulation on the lakes, May 21, 1898:

	Wheat, bushels.	Corn, bushels.
Chicago	2,260,000	6,833,000
Duluth	3,426,000	2,308,000
Milwaukee	138,000	.....
Detroit	47,000	166,000
Toledo	411,000	460,000
Buffalo	1,162,000	936,000
	7,444,000	10,703,000

As compared with a week ago, the above figures show, at the several points named, a decrease of 617,000 bushels of wheat and 1,090,000 bushels of corn.

Good Policy.

Free Cuba.
Annex Hawaii.
Take Porto Rico.
Send help to Dewey.
Occupy the Philippines.
Construct the Nicaragua canal.
Build up our ship yards and merchant marine.
Enlarge our army and navy and improve our coast defenses—at once.
Let congress pass ample appropriations that all this may be promptly and thoroughly performed.—New York Commercial.

MORE MONEY FOR THE PURCHASE OF SHIPS.

A NEW AUXILIARY NAVAL BOARD HAS $3,000,000 AT ITS COMMAND—OFFICIAL LIST OF VESSELS PURCHASED BY THE ROGERS BOARD.

New York, May 25.—The new board of naval officers for the purchase of auxiliary ships, of which Rear Admiral Erben is chairman, has an appropriation of $3,000,000 at its command and will soon begin the purchase of a large number of vessels to patrol the harbors, protect mine fields, and as a general line of defense for the coast. This board is also authorized to enlist 3,000 men to man the boats. It is proposed to secure about eighty-five vessels for this purpose, and to equip them in most cases with smooth-bore cannon, shooting 75-pound shells.

With the closing up of affairs of the Rogers auxiliary naval board, which is succeeded by this new commission, an official list of vessels inspected by that board and taken into the service of the United States government has been given out and is printed below. The list includes only forty-eight vessels, so that from other lists published in the past it is evident that the navy department has purchased a large number of vessels other than those inspected and recommended by the Rogers board.

The war department has also acquired a large number of vessels for transport purposes within the past few weeks, mainly by charter, and it would seem that the pick of the Atlantic coast fleet will soon be in the hands of the government. It is estimated that the war department now has some thirty-five vessels under engagement for the transportation of troops, and that these ships are capable of carrying 30,000 men and 12,000 animals. They are being concentrated at New Orleans, Tampa and Mobile. One of the latest purchases of the war department is the steamer John Englis, built not long ago at Chester, Pa., for the Maine Steamship Co. The Englis will be fitted up as a hospital ship.

Among vessels recently acquired by the navy department are the refrigerator ship Celtic King of New York and the Merritt & Chapman Wrecking Co.'s sea-going tug J. D. Jones. The Jones goes to the Norfolk navy yard for refitting. The Celtic King, which will be known in the navy simply as the Celtic, is provided with a refrigerating plant capable of keeping 1,200 tons of meat in a frozen condition. She will be assigned to Admiral Sampson's squadron and will be used as a supply ship in connection with the military invasion of Cuba. The tug A. W. Booth will be known in the navy as the Massassoit. The tank steamer Maverick, purchased from the Standard Oil Co., has been fitted out as a water boat and will join the blockading squadron at Havana. In the following official list of purchases, given out since affairs of the Rogers auxiliary board have been closed up in New York, the lengths are lengths between perpendiculars and the tons are gross tons:

Algonquin, formerly El Toro—Built in 1891 at Newport News; taken into auxiliary fleet; was a tug; length, 90 feet; breadth, 19 feet, mean draft, 9 feet; displacement, 187; tonnage, 130.16; speed, 10 knots.

Wompatuck, formerly the Atlas—Built in 1896 at Wilmington; taken into auxiliary fleet; was a tug; length, 117.5; breadth, 25.5; mean depth, 12.5; displacement, 462; tonnage, 323.52; speed, 13 knots.

Defence, formerly C. F. Shirk—No data furnished.

Eagle, formerly the Almy—Built in 1890 at Wilmington; taken into auxiliary fleet; signal mast; length, 155.5; breadth, 24; mean depth, 11.5; displacement, 434; tonnage, 364.75; speed, 15.5.

Hawk, formerly the Hermoine—Built in 1891 in Scotland; auxiliary fleet; signal mast; length, 145; breadth, 22; mean depth, 11.5; displacement 375; tonnage, 270; speed, 14.5.

Hornet, formerly the Alicia—Built in 1890 at Wilmington; auxiliary fleet; signal mast; length, 160; breadth, 24; depth, 11; displacement, 425; tonnage, 301.89; speed, 15.

Niagara, formerly the Niagara—Built in 1877 at Chester, Pa.; auxiliary fleet; steamship; length, 274; breadth, 38; depth, 19.5; displacement, 5,221; tonnage, 2,265.28; speed, 12.

Mayflower, formerly Mayflower—Built in 1897 at Clydebank; auxiliary fleet; brigantine; length, 273; breadth, 36; depth, 17.21; displacement, 2,690; tonnage, 1,009; speed, 16.8.

Nezinscot, formerly the De Witt C. Ivins—Built in 1897 at Philadelphia; to be a water boat; was a tug; length, 85; breadth, 19; depth, 8; displacement, 156; speed, 10.

Osceola, formerly Winthrop—Built in 1896 at Philadelphia; auxiliary fleet; was a tug; length, 125.42; breadth, 26.25; depth, 14; displacement, 571; tonnage, 352.35; speed, 14.

Saturn, formerly the Saturn—Built in 1890 at Wilmington; to be a collier; steamship; length, 275; breadth, 40; depth, 22; displacement, 6,220; tonnage, 2,268; speed, 11.

Sioux, formerly the P. H. Wise—Built in 1892 at Philadelphia; auxiliary fleet; was a tug; length, 84; breadth, 14; depth, 8; displacement, 155; tonnage, 111.38; speed, 10.

Resolute, formerly the Yorktown—Built in 1894 at Chester, Pa.; to be a transport; steamship; length, 307.5; breadth, 40; depth, 18; displacement, 4,175; tonnage, 2,898.28; speed, 16.

Somers—German torpedo boat; about 120 tons.

Scorpion, formerly the Sovereign—Built in 1896 at Brooklyn; auxiliary fleet; signal mast; length, 210.5; breadth, 28.08; depth, 11.5; displacement, 850; tonnage, 627.60; speed, 17.85.

Tecumseh, formerly the Ed. Luckenback—Built in 1896 in Canada; auxiliary fleet; was a tug; length, 88.5; breadth, 21.5; depth, 9.25; displacement, 214; tonnage, 149.55; speed, 11.

Uncas, formerly the W. A. Luckenback—Built in 1893 at Camden; auxiliary fleet; was a tug; length, 119.25; breadth, 25; depth, 12; displacement, 441; tonnage, 282.69; speed, 12.

Wasp, formerly the Columbia—Built in 1898 at Philadelphia; auxiliary fleet; signal mast; length, 180; breadth, 23; depth, 12; displacement, 630; tonnage, 380; speed, 16.5.

Manly, formerly an English vessel—To be a picket boat; length, 61; breadth, 9.29; depth, 2.25.

Alice—A steam lighter; no further data given.

Solace, formerly the Creole—Built in 1896 at Newport News; breadth, 44 feet; tonnage, 3,801.21.

Vixen, formerly the Josephine—Steam yacht; 546 tons.

Badger, formerly the Yumuri—Built in 1891 at Chester; auxiliary fleet; steamship; length, 326.5; breadth, 42; depth, 18.5; displacement, 4,784; tonnage, 3,496; speed, 14.2.

Yankee, formerly the El Norte—Built in 1892 at Newport News; auxiliary fleet; steamship; length, 380.42; breadth, 48; depth, 22; displacement, 9,986; tonnage, 4,659.17; speed, 14.5.

Prairie, formerly El Sol—Built in 1890 at Philadelphia; auxiliary fleet; steamship; length, 390.5; breadth, 46.8; depth, 22; displacement, 9,994; tonnage, 4,573; speed, 14.5.

Sterling—Built in 1881 at Glasgow; a collier; steamship; length, 274; breadth, 37; depth, 23; displacement, 5,663; tonnage, 2,016.04; speed, 11.

Dixie, formerly El Rio—Built in 1892 at Newport News; auxiliary fleet; steamship; breadth, 48 feet; tonnage, 4,664.88.

Yosemite, formerly El Sud—Built in 1892 at Newport News; auxiliary fleet; steamship; 48 feet in breadth; tonnage, 4,659.17.

Panther, formerly Venezuela—Built in 1889 at Philadelphia; transport; steamship; 310 feet long; breadth, 40 feet; depth, 20; displacement, 4,445; tonnage, 2,342.90; speed, 13.

Harvard, formerly New York—One of the chartered American line steamers, particulars of which are generally known.

Yale, formerly the Paris—One of the chartered American line steamers, particulars of which are generally known.

St. Louis, formerly St. Louis—One of the chartered American line steamers, particulars of which are generally known.

St. Paul, formerly St. Paul—One of the chartered American line steamers, particulars of which are generally known.

Restless, old name—Built in 1887 at Chester; auxiliary fleet; signal mast; length, 113; breadth, 16; depth, 6.75; displacement, 137; tonnage, 104.37; speed, 16.75.

Hist, formerly Thespia—Built in 1895 at Philadelphia; auxiliary fleet; signal mast; length, 174; breadth, 23.25; depth, 10; displacement, 472; tonnage, 311.74; speed, maximum, 14.5.

Viking, old name—Built in 1883 at Chester; auxiliary fleet; signal mast; length, 122; breadth, 21; depth, 8.5; displacement, 218; tonnage, 141.38; speed, maximum, 14.

Gloucester, formerly Corsair—Built in 1891 at Philadelphia; auxiliary fleet; length, 204; breadth, 27; depth, 12; displacement, 786; tonnage, 560.63; speed, 17.

Free Lance, old name—Built in Elizabethport in 1895; auxiliary fleet; length, 109; breadth, 20; depth, 8.5; displacement, 197; tonnage, 132.52; speed, 16.5.

Aileen, formerly Aileen—Built in 1896 at Chester; auxiliary fleet; length over all, 142; breadth, 20; depth, 8; tonnage, 131.33; speed, 13.

Felicia, old name—Built in 1898 at Brooklyn; torpedo boat; length over all, 179; breadth, 20; depth, 4,375; displacement, 159.2; speed, 13.8.

Apache, formerly the Hesperia—To be a collier.

Pawnee, formerly John Dwight—Built in 1896 at Tompkins Cove.

Chickasaw, formerly the Justin—Was a tug.

Mohawk, formerly Thomas P. Fowler—Built in 1893 at Newburg; was a tug.

Iris, formerly Menemsha.—To be a distilling steamer.

Vulcan, formerly the Chatham—Built in 1885 at Philadelphia; to be a repair steamer.

Pontiac, formerly the Right Arm—Built in 1891 at Athens; to be a wrecking steamer.

King Tor, old name—Built in 1896 in England; to be a collier; length, 310 feet; breadth, 44; tonnage, 2,738.17; speed, 10.

In addition to the very large sum of money provided in the naval appropriation bill for several large dry docks, there is another dry dock item in the deficiency appropriation bill now before congress. The item provides for the immediate purchase of two floating docks, and it is understood that the navy department knows where it can purchase these docks, ready for service. They are at New York, and, although of wood, and comparatively small, they will be of great service on being towed to Key West, where they will accommodate all but the largest battleships and cruisers. The department hopes to own these docks within a few weeks, as the needs of docking and scraping the warships, which have been in southern waters for a long time, is becoming imperative. The first action of the naval dock board will be to call for bids for the steel floating dock that is to be located at New Orleans. This dock is to be capable of floating a ship of 15,000 tons. Members of the dock board are Admiral Ramsey, Engineer Asserson and Naval Constructor Linnard. This board is already at work.

At a meeting of the Civil Engineers' Club of Cleveland, Tuesday evening, Joseph R. Oldham presented a paper on the subject of the "Mechanical Theory of Naval Architecture." He gave an interesting account of the International Congress of Naval Architects held in London last July, and reviewed some of the papers presented at the congress. Mr. Oldham also referred to the social features of the congress and the exceeding hospitality shown to the visitors from different parts of the world.

No lake vessel master can afford to be without a copy of the latest "Notice to Masters," issued by the United States hydrographic office. It contains some fifty pages of notes from the records of United States engineer officers, showing the condition of channels and harbors in all parts of the lakes.

Vessel owners in all parts of the lakes were pained to learn, a few days ago, that A. A. Parker of Detroit had suffered a stroke of paralysis. No vessel owner from one end of the lakes to the other has more friends or is more popular than Aaron Parker. It is hoped that if he quits business entirely for a while he may be fully restored to health.

To Oak Point beach and other pleasure resorts on the Nickel Plate road—Outing parties of twenty-five or more may secure very low rates to Oak Point beach and other resorts on the Nickel Plate road. Apply to any agent of the company, or address B. F. Horner, general passenger agent, Cleveland, O. 53—June 30

Signals for Ore Carriers at South Chicago.

A system of signals has been arranged at the works of the Illinois Steel Co., South Chicago, for the guidance of vessels carrying iron ore to that port. Mr. C. H. McCullough, Jr., assistant superintendent of the south works of the Illinois company, reports that the depth of water in the outer and inner channel leading to the north slip is 21 feet. The depth of water in the north slip is 20 feet. The depth of water in Calumet river, as far as the south slip of the Illinois Steel Co., is from 20 to 22 feet in the channel. The depth of water in the south slip is 20 feet. Signals for directing vessels into the north slip are displayed as follows:

Boats from—	Day signals—	Night signals—
Escanaba.	White flag.	White light.
Two Harbors.	Red flag.	Red light.
Ashland.	Green flag.	Green light.
Marquette.	Two white flags.	Two white lights.

It is understood that where no signals are displayed the vessels are expected to go into the old (south) slip. In addition to the above signals the following will be displayed on the yardarms of the signalmast: (1) Steamer by day—Red flag one end of yardarm; if on north end of yardarm go in north harbor; if on south end of yardarm go in south harbor. (2) Barge by day—White flag will be displayed the same as for (1). (3) At night, lights will be used the same as flags.

If two steamers with tows should come up the lake together—say one from Two Harbors and the other from Escanaba—Escanaba being white, the white flag will be shown under the red; the same from Two Harbors, two red will be shown on the same yardarm. Tows will be white at all times when coming from Escanaba and Two Harbors. From Escanaba, two white lights will be shown. The regular masthead signals will be shown at all times. Steamers are expected to give the following signals when abreast north harbor: One long whistle—from Escanaba and Gladstone; two long whistles—from Two Harbors and Duluth; three long whistles—from Ashland.

Death of Engineer Thomas F. Dowd.

The National Marine Engineers' Beneficial Association has lost one of its most valued members. Thomas F. Dowd, national secretary, died at his home in Chicago on Thursday last. Mr. Dowd has for many years been a leading spirit in the affairs of this organization. He was known to every marine engineer in the country. The following official notice of the death of Mr. Dowd was sent out from Chicago by the national president, Geo. Uhler, on the 21st inst.

To the order wherever found, greeting:—With a feeling of profound sorrow, I announce the death from pneumonia, after an illness of only six days, of Brother Thomas F. Dowd, national secretary, at his home in this city, at 9:30 a. m., Thursday, the 19th instant. It is not my desire at this time to enter into any detailed eulogy of the official life and services of our deceased brother, but with a sincere appreciation of his untiring zeal and interest in the affairs of the organization with which he has been officially connected for so many years, I simply make this brief announcement. The national president will be in Chicago for some days in connection with the office made vacant by the demise of our brother. Any important communications can be addressed to the Sherman house, Chicago. To fill out the unexpired term of our late Brother Dowd, I have this day appointed as national secretary, Brother George A. Grubb of M. E. B. A. Number 4, whose address will be No. 1537 George street, station B. Chicago, to whom all communications should be addressed, and to whom all remittances should be forwarded.

Fraternally submitted in unity and friendship,
GEORGE UHLER,
Chicago, May 21, 1898. National President.

A Compliment to Major Symons.

Mr. E. L. Corthell, well-known civil engineer of Chicago, writes as follows to the Railroad Gazette from the home of the Institution of Civil Engineers, London:

"I found here the report by Major Symons on the ship-canal from the Great Lakes on my arrival from the Continent. I have read it with great interest and profit as well. I consider it the most valuable report on the subject ever brought forward, and am sorry it was confined to the United States territory. The report will be a needed addition to the literature of the general subject of an enlarged waterway between the great lakes and the seaboard. It brings out more fully than the advocates of a ship-canal would do or have done the great factor that railroads are in the problem, and they will be still greater as time goes on.

"I wrote a little on this subject some years ago in the discussion of Mr. Sweet's ship-canal paper before the American Society of Civil Engineers, and yet, should I write on the subject now, I could make a still greater point in favor of the railroads, for the development I then predicted in unit of mass of freight carried is rapidly coming forward, cars, being now built of 100,000 pounds capacity, and larger still are coming. My suggestion then of great cargo carriers running on four rails or more (like the ship railroad projects) may in the future, and the near future, seem more reasonable than they did twelve years ago. I am now inclined to believe that Montreal (on the route I found to be the best, via the St. Lawrence river) would be a transshipping point from inland to ocean waters."

Nickel Plate Road Home Seekers' Excursion.

June 7th and 21st, at lowest rates. Tickets to all designated points northwest, west and southwest, also to designated points in the south. Ask agents. No. 56, June 20.

Oak Point beach and other picnic groves on Nickel Plate road for church, Sunday school, societies, clubs and camping parties—Committees desiring special train service for Oak Point beach or other pleasure groves may secure information by calling on agents or addressing the general passenger agent, Nickel Plate road, Cleveland, O. 54—June 30

Around the Lakes.

Capt. Henry Donaldson, well-known as a steamboat master on Lake Ontario, died at Toronto a few days ago.

Capt Zinn of the army engineer corps, who has been stationed at Milwaukee for a long time past, is to be removed from that port.

General Manager Newman of the Cleveland & Buffalo Transit Co. says he expects to have the new side-wheel steamer City of Erie in service before June 15.

The Kingston board of trade has again suggested to the Canadian government that canals of the Dominion should be closed on Sundays only between the hours of 5 a. m. and 9 p. m.

Capt. Geo. Pleasance, well-known to the older vessel men of the lakes, took his life at the home of his daughter in Cleveland Sunday. He was seventy-nine years of age and had been rapidly failing in health.

Chief engineer J. R. Dally of the revenue cutter Fessenden has been assigned to construction duty at the ship yard of the Globe Iron Works Co., Cleveland, and will be succeeded by Chief Engineer C. H. Foote.

On June 15 double daily steamboat service will be provided on the Put-in-Bay and Toledo line that is operated jointly by the Detroit & Cleveland and the Cleveland & Buffalo companies. A boat will leave Cleveland daily at 8:30 a. m. for the islands and Toledo and at 10 p. m. for Toledo direct.

The Canadian government is about to relay the Pelee island telephone cable. This time it will be placed east of Point Pelee bar out to the Dummy light where an instrument will be placed, thence south of the "middle ground" to Pelee island light. Whether it will be landed at Brown's dock on the east side of Pelee island, and thence by land to the light-house is not yet quite decided. This change in the cable will remove it from the anchorage off Point Pelee in Pigeon bay, where it has often been broken and greatly strained by vessels dragging their anchors over it. It will give a much needed station at the Dummy light, and lying south of the "middle ground," will be sheltered during winter from the drifting ice floes, which, driven by the westerly gales, grind over the reefs in huge masses, wearing and twisting the cable between the ice above and the rock below.

In addition to the order for a freight steamer to replace the wrecked Rosedale, the Bertram Engine Works of Toronto has five vessels under way—two for the Prescott Elevator Co., one for the Richelieu & Ontario Navigation Co., and two for the Canadian Pacific Co. Those for the Prescott Elevator Co. are barges of 165 feet 6 inches length over all, 160 feet 10 inches length of keel, 30 feet beam and 13 feet molded depth. The Richelieu & Ontario steamer—a passenger boat—has dimensions of 279 feet 4 inches over all, 270 feet 6 inches keel, 36 feet beam, and 14 feet molded depth. Those under construction for the Canadian Pacific Co. are stern wheelers, 162 feet 6 inches over all, 140 feet 6 inches keel, 30 feet beam and 5 feet molded depth, for the Klondike trade.

Effect of the War on Ore Supplies.

The possibility of the war between the United States and Spain interfering with the British supply of Spanish ores, or at least increasing the cost of such ores through the levying of an export tax, has given the iron trade of the United Kingdom some concern. The British Iron Trade Association has addressed a memorial on the subject to Prime Minister Salisbury, setting forth that any interference with the supply or any increased burden on exported ores from Spain would be attended with the gravest consequences to the iron industry of the United Kingdom. In commenting on the matter, one British iron trade papers says that of course other ores are available at a price, and mentions in this connection the possibility of securing Lake Superior ores. It adds that the importation of these ores to South Wales was seriously under consideration some time ago. Reference is made doubtless to the widely circulated report of a few months ago concerning the negotiations for Mesabi ores to go abroad. It is surprising to find such a proposition seriously entertained. If the blast furnaces of the United Kingdom came to the point where they must draw upon the Lake Superior ore supply, it would seem that they were ready to confess that their days of competition with the steel works of the United States were at an end. If the prices which English iron masters are getting and must get for their pig iron warrant the hauling of Lake Superior ores 4,500 to 5,000 miles, and 1¾ tons of ore are required for every ton of steel produced, what chance has the resultant steel against the American product, of which but 2,000 pounds to the ton must pay the long-haul freight?—Iron Trade Review.

Launch of the Presque Isle.

Another freight steamer, modern in every way, was launched at the Lorain yard of the Cleveland Ship Building Co., Wednesday. The vessel is the Presque Isle, built for the Presque Isle Transportation, and to be managed in the office of Mr. W. G. Mather, Cleveland. The principal stockholders are Mr. W. G. Mather and Jones & Laughlins of Pittsburg. The new steamer is 426 feet over all, 406 feet keel, 50 feet beam and 28 feet deep. She will have quadruple expansion engines and steam will be furnished by two Babcock & Wilcox water tube boilers. This vessel will be among the largest carriers on the lakes. She will be engaged mainly in the ore trade betwen Marquette and Ohio ports, and will be sailed by Capt. James Lowe, with Thomas Kelley as chief engineer. It is expected that she will go into commission about June 15.

A letter from the Buffalo Forge Co., Buffalo, N. Y., contains the following note: "We receive a great many compliments about our blacksmith tools, and they are encouraging to us, as our aim at all times is to have the best design and use the right materials. Kirk Miller of Chester, Pa., says in a letter of the 18th inst.: "I received your letter with enclosed plates, and would just like to tell you that I have used one of your hand blowers for sixteen years. They have been in constant use and to all appearance are as good as ever. I shall keep your letter for future reference, and am obliged for same."

MARINE REVIEW

DEVOTED TO LAKE MARINE AND KINDRED INTERESTS.

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The books of the United States treasury department on June 30, 1897, contained the names of 3,230 vessels, of 1,410,102.60 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons, and over that amount, on the lakes on June 30, 1897, was 399, and their aggregate gross tonnage 769,366.68; the number of vessels of this class owned in all other parts of the country on the same date was 314, and their tonnage 685,709.07, so that more than half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1897, was as follows.

	Number.	Gross Tonnage.
Steam vessels	1,775	717,235.45
Sailing vessels and barges	1,094	694,888.87
Canal boats	361	37,978.28
Total	3,230	1,410,102.60

The gross registered tonnage of the vessels built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

Year ending June 30, 1893	175	99,271.24
" " " 1894	106	41,984.61
" " " 1895	93	36,352.70
" " " 1896	117	108,782.38
" " " 1897	120	116,936.98
Total	611	403,327.91

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC. (From Official Reports of Canal Officers.)

	St. Mary's Falls Canals.			Suez Canal.		
	1897	1896	1895	1897	1896	1895
Number of vessel passages	17,171	18,615	17,956	2,986	3,409	3,434
Tonnage, net registered	17,619,933	17,249,418	16,806,781	7,899,374	8,560,284	8,448,383
Days of navigation	234	232	231	365	365	365

There is now little chance of the naval personnel bill ever becoming a law. Representative Bodine of the house committee on naval affairs thus sums up the opposition: "I am opposed to its main features. I refer to that part of it which attempts to settle the jealousies existing between the engineers and the line. They appear to have combined together and agreed that, in consideration of the engineers getting more rank and the line getting more pay, they will no longer injure the efficiency of the navy by their mutual jealousies and bickering. The effect of the bill, if carried out, would be to make poorer officers all around. And if there ever was a time in the history of our navy where specialists were required in every department, it is now. The bill has a tendency to make all officials 'jacks' of both trades and masters of neither. So far as those features of the bill are concerned, the object of which is to elevate the common soldier and the warrant officers, I am in sympathy with it. I want to see the day when the self-respecting American citizen can become a common seaman; and then, and not till then, that our navy be composed of native-born American citizens."

A bill for the promotion of the efficiency of the revenue cutter service has been reported from the house committee on commerce. The bill empowers the secretary of the treasury to convene boards of inquiry and boards of survey for the enforcement of discipline; provides that officers, when promoted, shall receive pay from the date of the occurrence of the vacancy, contains provisions for the disposition of the effects of an enlisted man, in the event of death or desertion; and prescribes penalties for disobedience of orders, and for assaulting a commissioned or other officer. Section 12 authorizes the secretary of the treasury to issue uniform clothing to the enlisted force; and section 13 provides that officers of the revenue cutter service serving on vessels in co-operation with the navy shall receive the same pay, emoluments and privileges as officers of the navy, with whom they hold the relative rank prescribed by law.

A dispatch from Philadelphia reports an advance recently of 20 points a share in stock of the Wm. Cramp & Sons Ship & Engine Building Co. It is also said that Standard Oil interests have of late been associated with the Philadelphia ship building concern. There is nothing definite about this latter report, but the Russian naval order is in itself sufficient to cause a marked advance in the value of Cramp ship yard stock. Every ship building plant on the Atlantic coast is crowded with orders for several months to come. Within the past six weeks the United States government has purchased about 100,000 tons of shipping. This is more tonnage than has been built in the metal yards of the Atlantic coast in any two years for twenty years past. If the purchases of the government are to form permanent additions to the navy, the Atlantic coast yards should certainly be very busy for the next two or three years.

Lieut. Gen. Schofield, retired, says in the Army and Navy Journal: "It is patent to every one that we must have a number of coaling stations all over the world that absolutely belong to us. We must have Hawaii, too. The present war demonstrates our great need of these coaling stations. But perhaps the most important thing of all is the imperative need of a canal through the Isthmus of Panama, in order that our ships can pass back and forth as needed, without being compelled to go around Cape Horn. If we had such a canal just now, look how easy it would be for our vessels to patrol our coasts, as well as cover all the possible moves of the Spanish fleet."

A new dry dock at Govan (called graving dock in Scotland) is 880 feet floor length, 83 feet bottom width, 115 feet at top, and 26 feet over sill at average high water. This dock has been building for several years. A gate divides it into two lengths of 460 and 420 feet respectively. It is controlled by the Clyde trustees and is known as dock No. 3. The bottom consists of a brick invert nearly 6 feet thick, covered by concrete 6 feet thick at the centre, and about 18 inches at the sides, so as to give a camber. The floor is causewayed with granite. The side walls are of concrete, increased in 12-inch sheet piling and a brick wall. The altars, or steps, are of concrete faced with granolithic, and the side walls and end walls are surmounted by a massive granite cope. The total cost of the dock, including pumping and other apparatus was about $1204,500.

The absence of an elevator pool in Buffalo this season will undoubtedly tend to bunch the grain carriers at the big houses, and thus cause more delay than would be encountered when the grain could be divided among pool elevators. If this pool is not revived, the greatest drawbacks in this regard will come in the fall, when there is usually a blockade in the grain trade. With a heavy fall trade the delays may be of a kind never before experienced at Buffalo. Still, there is some consolation in feeling that such a condition might prompt vessel men to take strong measures towards bringing about a change in the present unsatisfactory grain bill of lading and also correcting some of the abuses that prevail at Buffalo during periods of active grain shipments.

Representative Pearce of Missouri on Tuesday introduced in the house a bill authorizing the construction of five first-class cruisers to cost $4,000,000 each; ten torpedo boats to cost $200,000 each, and thirteen torpedo boat destroyers, to cost $650,000 each. The cruisers are to be of 11,500 tons each, capable of making at least 20 knots an hour, and to carry the heaviest armor and armament practicable. It is not probable that much progress will be made with a bill of this kind, introduced without the sanction of the naval committee.

Lyman E. Cooley, well-known engineer of Chicago, says: "As a bluff, if nothing more, the Nicaraguan canal in operation to-day would be worth $100,000,000 to this goverment. Completed, it could perpetually say to all nations that our fleets, in a moment of necessity could command the Atlantic and Pacific oceans, as no other fleets in the world would be able to do." Mr. Cooley spent two or three months last winter with the Nicaragua canal commission on the proposed route of the canal.

At least two of the lake ship building concerns have been in correspondence during the past week with Atlantic coast ship owners who contemplate placing orders for new vessels, but who have found that the coast yards are so crowded with work that it will be impossible to secure delivery from them until late next year. The vessels under consideration are large freight carriers and the plan of the lake builders is to cut them in two for passage through the Canadian canals.

An unusual test of the submarine vessel Argonaut was made at the Columbian Iron Works a few days ago. She was sunk alongside the wharf all night, while a number of the crew slept in the submerged hull. They had an abundance of air and electric lights, and awoke refreshed. The Argonaut has been refitted with new air pipes, which allow her to descend 50 feet without drawing air from the storage compressors.

Chas. H. Cramp, president of the William Cramp & Sons Ship & Engine Building Co. of Philadelphia, denies absolutely the reported consolidation of the Cramps company and Vickers' Sons & Maxim of Barrow-in-Furness, England, into one ship building concern. Mr. Cramp says that such a move has never been contemplated. He also denies the report that his company is to build a ship yard at Port Arthur for Russia.

For 200 consecutive voyages, says an officer of the Old Dominion Line, the average hour of arrival in New York of the steamships Yorktown, Jamestown and Princess Anne had been 3:58 p. m., they being due between 3:30 and 4 p. m. Such uniformity of speed in ocean vessels covering a trip of over 300 miles (Norfolk to New York) in all kinds of weather is remarkable.

Buffalo will soon enter the list of soft coal shipping ports with quite a large tonnage, as it is expected that the car dumping machine being built by The Webster, Camp & Lane Co. of Akron, on the docks of the Rochester & Pittsburg Coal & Iron Co. at that port will be in operation about the second week of June.

J. Beaver Webb of New York has designed a new steam yacht for Commodore Morgan of the New York Yacht Club, who sold his fast yacht Corsair to the government. The new yacht will be 252 feet long on the water line (nearly 50 feet longer than the Corsair), 33 feet beam, and will draw about 14 feet of water.

The Iron Age reports that among export business recently put through is an order calling for 5000 tons of steel plates for an English war ship, the mill being located 1000 miles from tidewater. Another, though smaller export order for ship plates has also been taken by the same concern.

From present indications the new warships, the Kentucky and Kearsarge, will be ready for service about Nov. 1, while the Illinois cannot be put into commission much before Feb. 1.

The trial by court-martial of A. G. Menocal, civil engineer, for alleged carelessness in supervision of the construction of the big timber dry dock (No. 3) at the Brooklyn navy yard, is under way in New York.

PNEUMATIC TOOLS FOR SHIP YARDS.

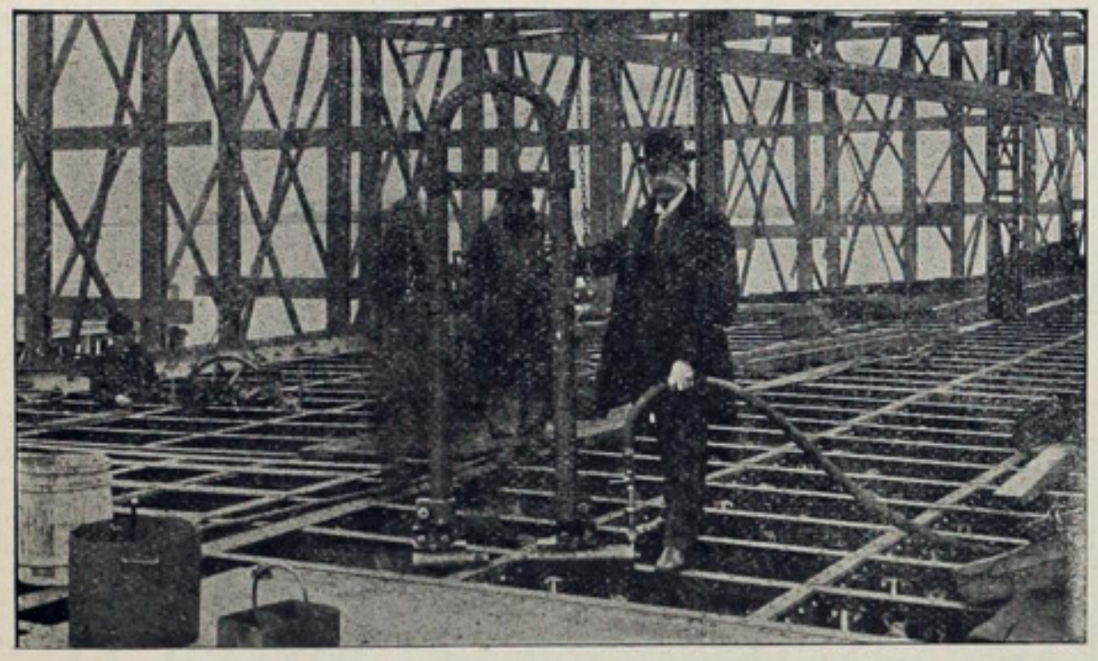
DESCRIPTION OF THE EQUIPMENT AT WYANDOTTE—A CHICAGO CONCERN FURNISHING OUTFITS FOR LEADING PLANTS IN ALL PARTS OF THE WORLD.

In the development of labor-saving machinery, the ship yards of this country, although few in number, have led the world during the past two or three years. This is admitted by English and Scotch builders who have visited our yards of late, and who are rapidly adopting American tools as well as American methods of handling material. Hundreds of pneumatic tools made in Chicago have been put into ship yards of England, Scotland, Germany, Russia and other maritime countries within the past year. This machinery has been developed almost entirely on the lakes. An equipment now fully in operation at the Wyandotte ship yard of the Detroit Dry Dock Co. is an example of progress in this line. At this yard perfection, or nearly that, seems to have been attained in the use of pneumatic tools.

Workmen at the Wyandotte ship yard are using these tools, which sometimes seem almost endowed with life and brains, in places and ways where heretofore nothing but hand work was thought possible. At this yard there are eight pneumatic riveters, eight drilling machines, and several chipping and calking hammers, all made by the Chicago Pneumatic Tool Co. of Chicago, Ill. An engine of not more than 50 horse power runs the air compressing plant.

The original purpose of the riveting machine was for yoke work, riveting stringers, etc., but as used in the Wyandotte yards it is applicable to all floor work. Mr. F. A. Kirby, superintendent of the yard, is now at work on an attachment by the use of which the Chicago riveter can be applied to shell and bulkhead work, so that the time is near at hand when there will be practically no part of the ship's structure in which this tool cannot be used to advantage. Experienced men at high wages are not necessary for the successful operation of the Chicago machine. Less than half a day's trial is necessary for a man of ordinary intelligence to become skillful in managing it. It is also understood, of course, that the machines may be used with equal advantage in bridge work and other structural work.

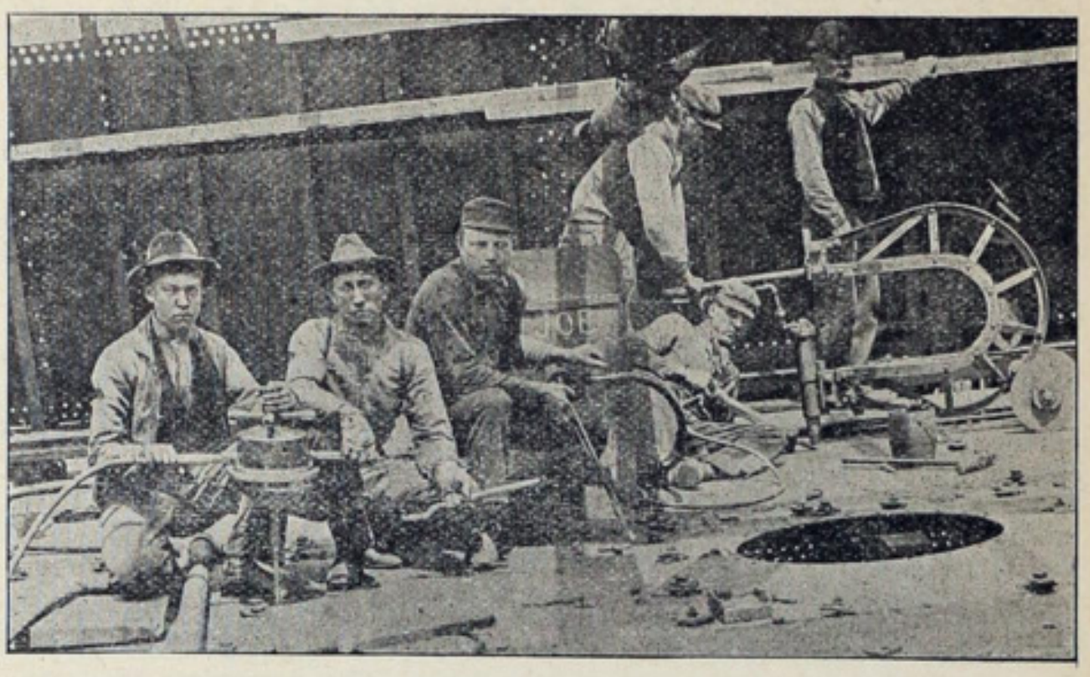
Wonderful reports are made regarding this riveting machine as a money saver. At the Wyandotte yard the cost of driving rivets has been reduced to one-third of the expense of riveting by hand. As the regular price paid for hand riveting is 3 cents per rivet, against a cost of not more than about 1 cent for work with the machines, it will readiiy be seen that the money saved on the freight steamer now building at the Wyandotte yard, in which there will be something over 360,000 rivets, will be a big item. On one deck floor, although yet unfinished, about $1600 has been saved by using the Chicago tools. The work done by the riveting machines used on this deck floor is so smooth that the unexperienced eye would scarcely detect the pressure of the rivet. The hammer marks so conspicuous in hand work are done away with entirely.



YOKE RIVETER (7 FOOT MOUTH) IN USE AT WYANDOTTE, MICH., SHIP YARD.

Several appliances are in use to make the machine portable. The yoke riveter is suspended from a car running on a trolley wire extending the full length of the boat. The tool used on the deck floors is mounted on a pair of wheels and is so balanced that while sufficient weight is given to the hammer, it requires little exertion to move it about as desired.

When the Chicago company's tools were first placed in the Wyandotte yard great trouble was encountered on account of the inadequacy of the means of heating rivets with the hand bellows forge then in use. By making a few changes in the old forges and applying an air blast. The rivet heater can now by hard work keep up with the driver. Experiments will be made in the near future with an electrical heater, which, so its manufacturer claims, will heat 150 rivets every minute. Mr. Kirby stated that in case the electrical heater is a success he will put in a system of pneumatic tubes for the delivery of rivets to different parts of the ship, in that way making the one forge supply several machines.

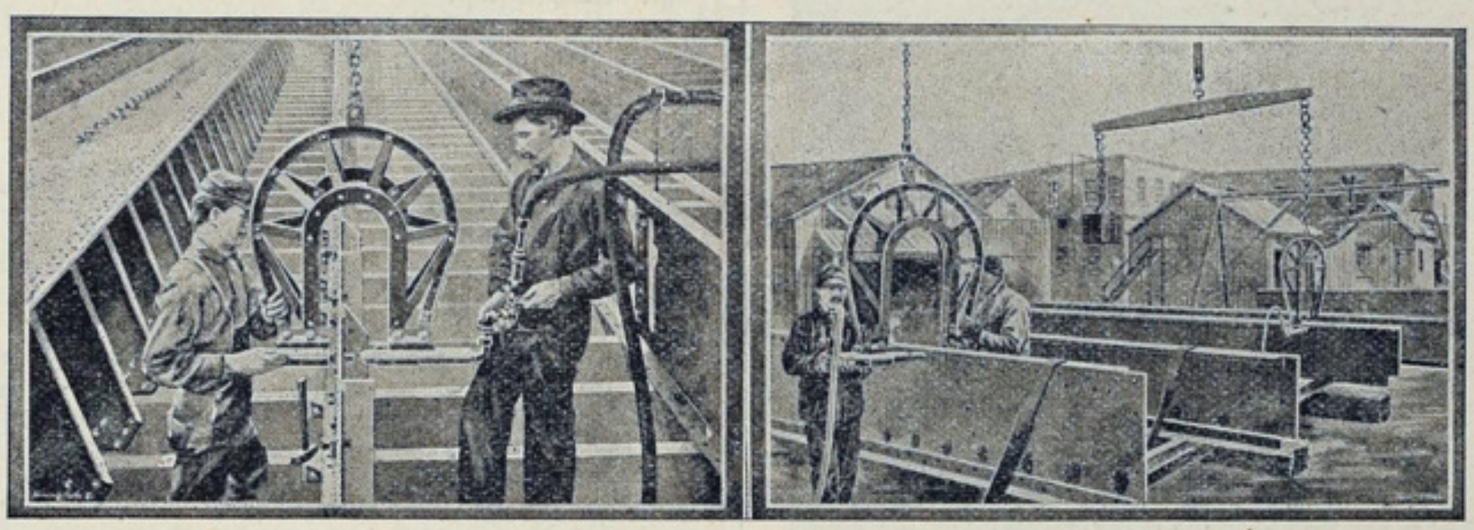


PNEUMATIC DRILL, FORGE, CHIPPING OR CALKING MACHINE AND YOKE RIVETER, IN USE AT YARD OF DETROIT DRY DOCK CO., WYANDOTTE, MICH.

For the purpose of making holes true in plates and other parts that are being joined, a common reamer is used in the pneumatic drill. The work is done quickly and easily, the drill being of light weight and easily handled. The work of the chipping hammers would make an old time metal worker wonder if the millenneum had not arrived, the keen-edged chisel driven by the sharp quick stroke of the pneumatic hammer, cutting through the metal as though it were a piece of soft wood. A leading feature of the Chicago machines is their very low cost and small expense of operation, thus making possible their use in small establishments.

Taken altogether the Chicago company's equipment, as used in the Wyandotte yard, is a marvel of mechanical ingenuity. Representatives from many other ship yards have inspected the new machinery and are unanimous in one expression at least, and that is "what next!" Compressed air is rapidly displacing human muscle, and the pneumatic hammers, drills, riveters, calkers and other tools are doing more work of a higher standard as regards quality and at a wonderful reduction in cost.

Mr. J. W. Duntley of the Chicago firm, who has just returned from Europe, where he has been engaged in introducing these tools, says that his company is shipping from sixty to seventy machines each week to their London office for the European trade. They have lately placed a complete plant in the big works at Newport News, and also in the Bath works, Bath, Me. After a thorough trial, officers in charge of the Brooklyn navy yard have endorsed the machines and have ordered a full outfit.



YOKE RIVETER USED FOR SHIP, BRIDGE AND STRUCTURAL WORK.

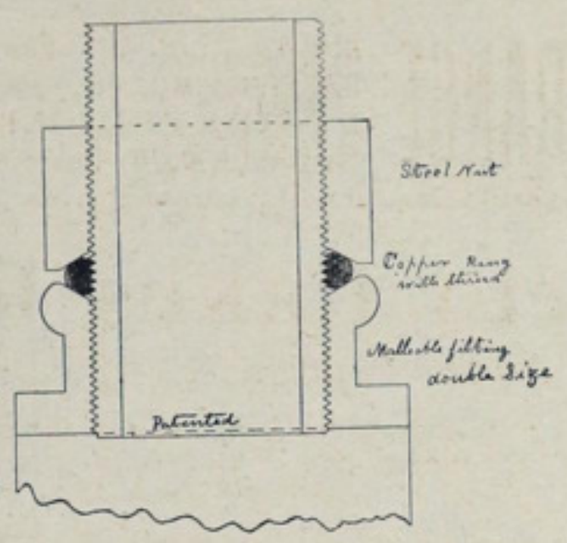
Tonnage of New Lake Vessels.

Tonnage and official numbers of lake vessels entered on the books of the United States commissioner of navigation during the week ending May 14, are as follows: Steam—Alfred J. Beach, Chicago, 364.68 tons gross, 198.97 tons net, No. 107,362; Charles F. Dunbar, Buffalo, 136.74 gross, 92.99 net, No. 127,241. Unrigged—Fairview, Erie, 151.58 gross, same net, No. 37,574; Guy Jones, Oswego, 124.59 gross, same net, No. 39,715; Patrick Tirnan, Buffalo, 127.17 gross, same net, No. 54,528.

We are developing a foreign trade in iron and steel products quite rapidly, but it is unfortunate that these exports must be made in foreign ships. The following note regarding shipments of steel rails from the works of the Maryland Steel Co. is from a Baltimore journal: "To transport large quantities of steel rails that are being shipped by the Maryland Steel Co. of Sparrow's Point to Australia and Russia, several large vessels will be required. The steamship Queen Christina has been chartered especially for this purpose and has loaded a cargo of 2,000 tons for Melbourne, which will form part of the Australian order. Three ships have also been chartered to load direct at Sparrow's Point with rails for the Siberian order. These will be discharged at Vladivostok, Siberia. The vessels will probably go by the way of the Suez canal. In addition to the orders already secured, it is stated that the works will make 4,000 tons of rails for lines in Jamaica to be built in the near future."

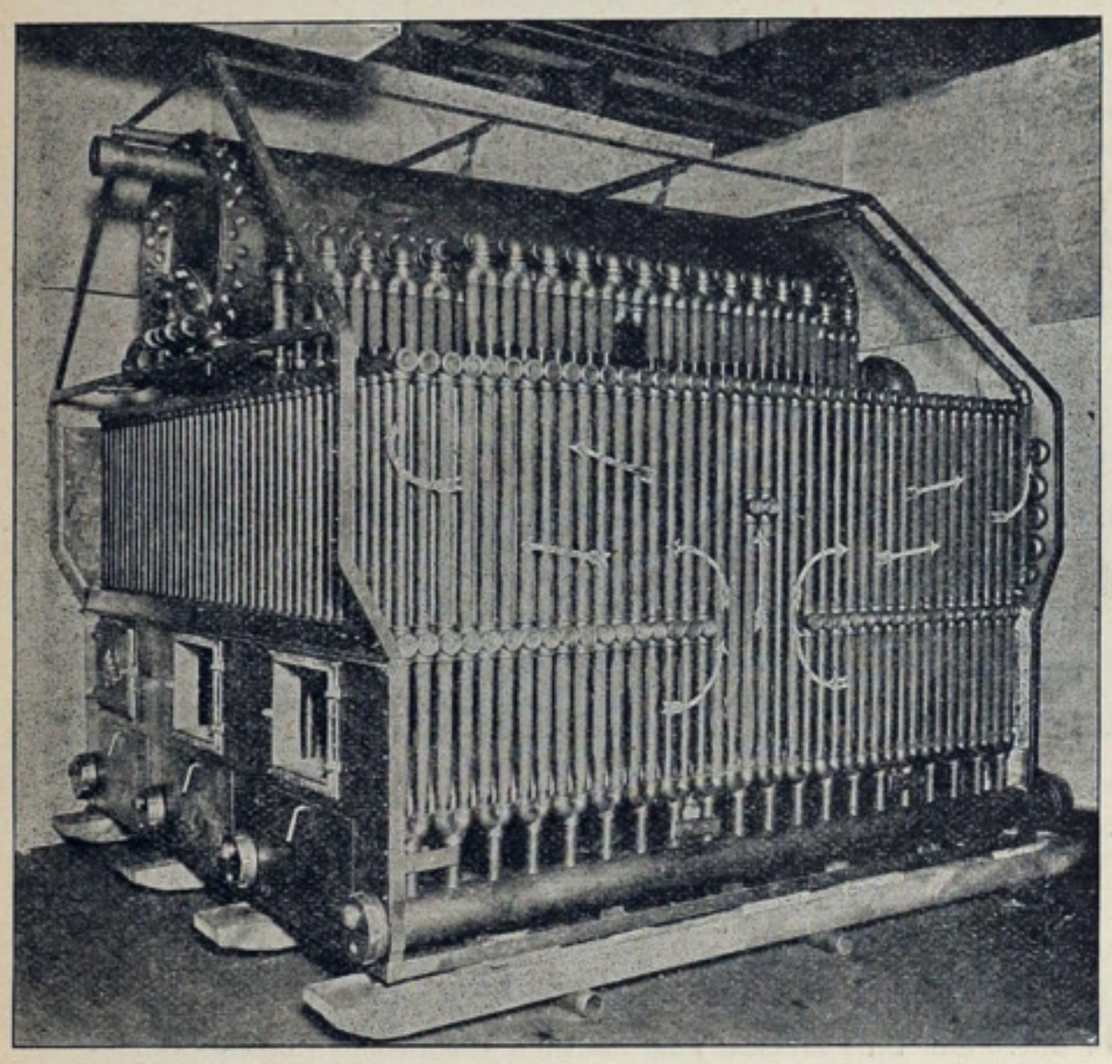
Taylor Water Tube Boiler.

Manufacturers of the Taylor water tube boiler—the Detroit Screw Works, Detroit, Mich.—are undoubtedly pleased with the opportunity that will be offered to test their boiler in the United States navy if the steam yacht Enquirer, according to report, is made a part of the auxiliary naval fleet. The Enquirer is fitted with a Taylor boiler, and repeated reports from her engineer are to the effect that he has at all times an abundance of steam. During the race with the Say When the Enquirer's engines made an average of 356 revolutions, and the engineer reported that they could have held 250 pounds of steam running at that speed for at least four hours.



The Taylor boiler illustrated herewith is composed of thirty-four sections, each having thirty-seven 1¼-inch upright pipes for circulation. The circulation in the sections is upward in some of the tubes (those that deliver steam to the upper manifolds) and downward in others delivering water to the lower manifolds above the fire.

This boiler is easily cleaned or inspected by the removal of the brass plugs from the end of the section manifolds. The grates are made to revolve so that the fire is cleaned quickly and easily. The pipes being



upright and straight, and all being subjected to the same degree of heat and having the same water level, the variation in expansion and contraction is reduced to the vanishing point.

Manufacturers of the Taylor boiler guarantee it against ruptured tubes. They state that not a cent has ever been expended for repairs to any pipe or fitting in any boiler built under any of these patents. The boiler shown in the illustration has 2,000 square feet of heating surface and 51 square feet of grate surface. Its weight is less than nine pounds per square foot of heating surface. Owing to the peculiar arrangement of the upper manifolds and the presence in the drum of a separator and dry pipe, the steam produced by this boiler is always dry. Since this type of generator has been placed on the market not one has been known to prime. Owing to the small space occupied and steady water line, the boilers are especially suited to marine use.

The final connection of the Taylor boiler is made by a "copper joint," shown in the illustration, the invention of Mr. H. H. Taylor. In this joint a piece of soft copper wire is used in the place of packing. The particular advantage of this joint lies in the fact that while it is easily disconnected, the wire packing never leaks or needs replacing.

Government to Insure Shipping.

In view of the attention that is being given in Washington to the war revenue bill and to measures pertaining to the army and navy, it is not probable that sufficient interest can be aroused in the McCall merchant marine insurance bill to secure its passage. This bill is one of great importance, however, and is deserving of careful consideration. It provides, in short, that the government shall insure all American ships and American-owned cargoes thereof to their full value in time of war. This bill was before the house committee on judiciary a few days ago, and one of the principal arguments in favor of its passage was made by John C. Coombs of Boston. Mr. Coombs said in part:

"At the beginning of the rebellion 75 per cent. of American exports and imports were carried in American vessels. During that war but 104,605 tons of American shipping was destroyed, and yet nearly eight times that amount got frigh ened and ran away to seek protection of other flags, so that over 900,000 tons were lost to us in the ways stated, representing about $50,000,000. It was all because we were not brave and true enough to promise to protect it, for afterwards we did collect from England the Geneva award, enough to pay all the direct damage, and did in fact so pay it. So that the promise to do so would have cost absolutely nothing, and for the want of the promise we lost the trade of the world. Charles Sumner put the value of our loss at $3,000,000,000. From those losses we have never recovered: to-day we are carrying only 11 per cent. of the value of our foreign trade, and we do less than 3½ per cent. of the world's international navigation, while England has over half of the whole.

"We are at the lowest ebb of our merchant marine, and so the proposed insurance, in any event, could be inaugurated at little or no cost. In nearly sixty years our foreign-going vessels have not been of so small tonnage as to-day. If every plank of all of our shipping which would seem to be exposed to privateering in this war was sunk, the loss would seem to be less than $35,000,000, while if we assume that that shipping was loaded with the cargoes of the average value of our present cargoes in American bottoms, 1 cent a pound, the total loss of all our exposed shipping, loaded, would probably not exceed $50,000,000. Of course, in no war would all this be destroyed. If our present shipping should be destroyed in the same proportion as was our shipping during that war our loss in the present one would not exceed $1,500,000, and it would seem to be more than likely that not only would the passage of the bill not make the government ultimately liable to even so large an amount as $1,500,000, but it should really cost it nothing, as the bill provides that the proceeds from prizes captured from the enemy or any indemnity which the government may see fit to impose on the enemy should constitute a fund sufficient to indemnify its citizens for the property which the government is unable to protect from the depredations of a common enemy."

"Summer Outings," published by Nickel Plate road and prepared by Advertect Horner, is neat and attractive, the cover being one of the most artistic ever put on a booklet. The contents mention and illustrate places between Buffalo and Chicago where an inexpensive and restful vacation may be spent. Anyone sending a postal card request giving name and address will receive a copy.

William E. Woodall & Co. of Baltimore have laid the blocks for a steam barge, which the firm will build on their own account. The dimensions will be 133 feet long, 24 feet beam and 8 feet depth of hold.

Capt. Howard Patterson, nautical teacher and expert, has been appointed by the board of education of New York city as instructor in navigation in the schools of that city.

The White Star Towing Co. has laid the keel for a new towboat at Noank, Ct. The tug will be 90 feet long, and have modern equipment in the way of machinery, etc.

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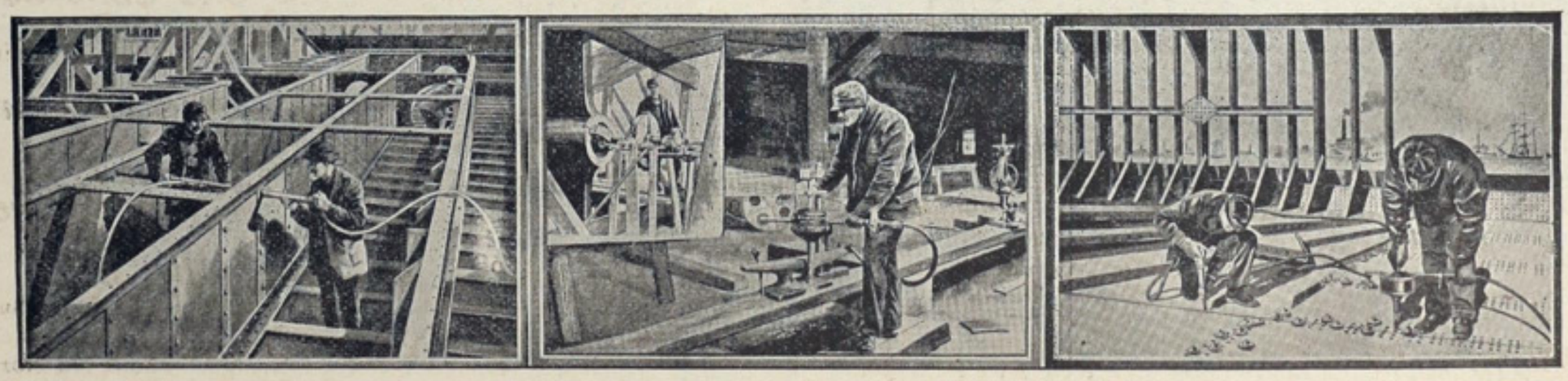

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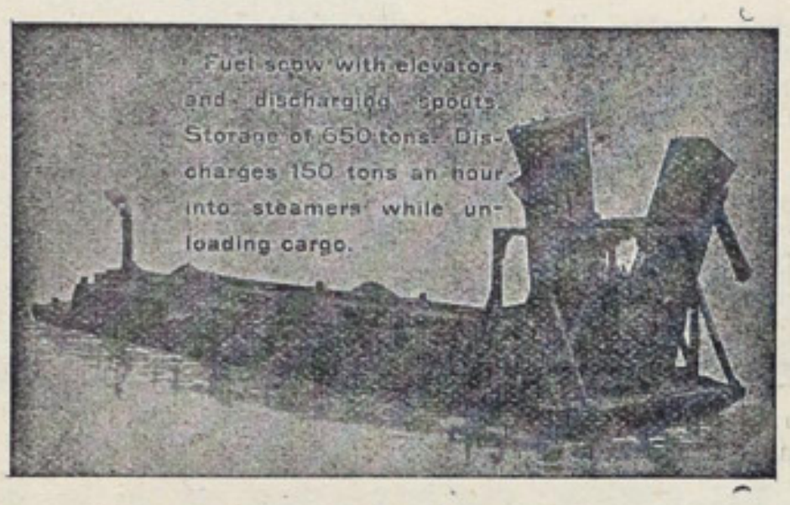
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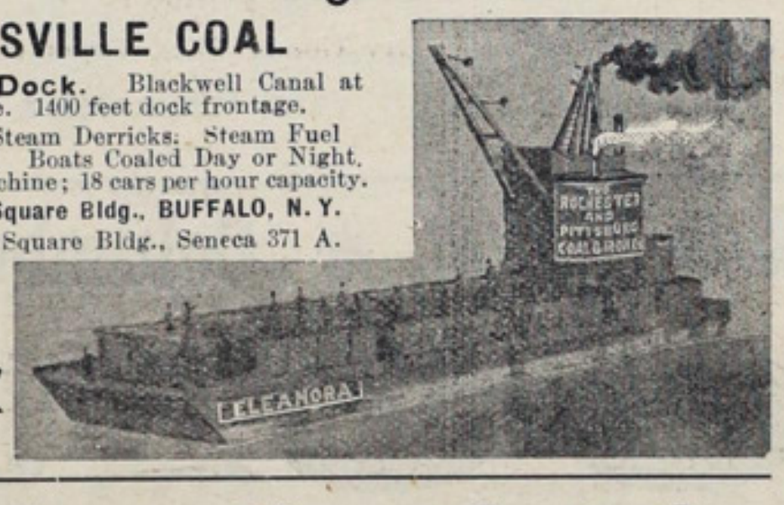

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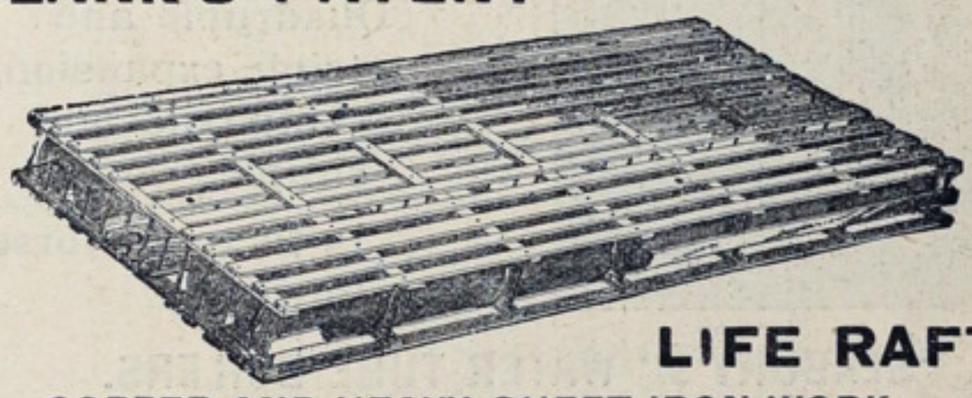

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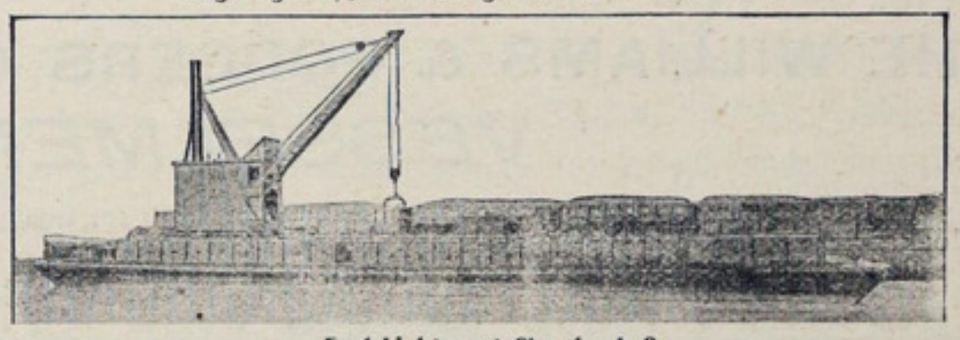

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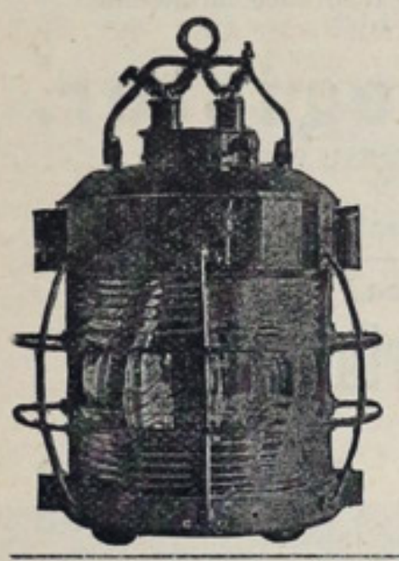

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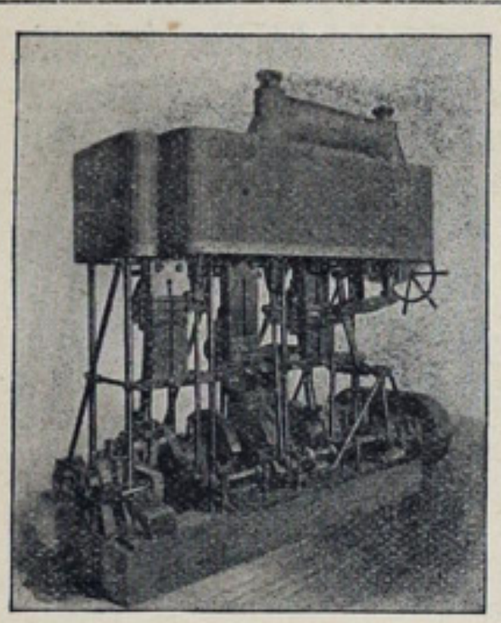

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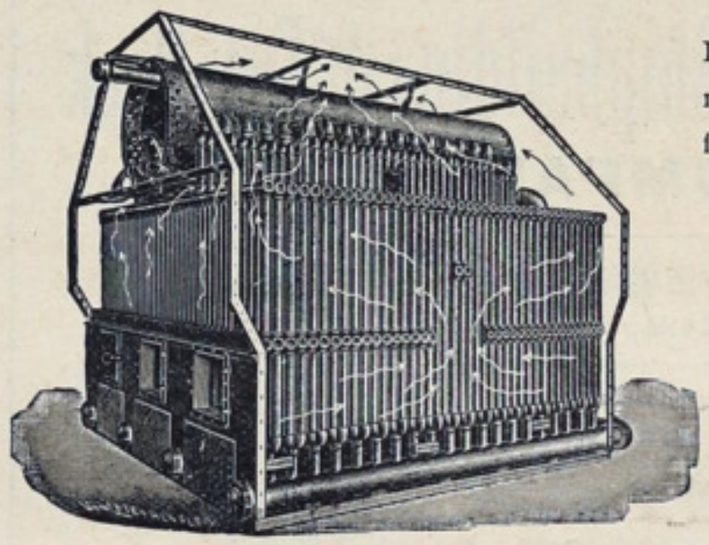

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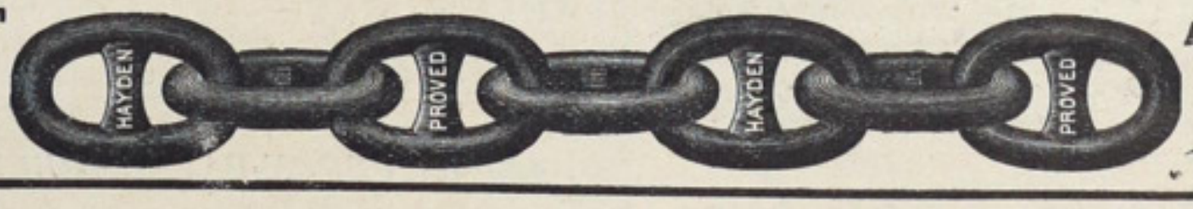

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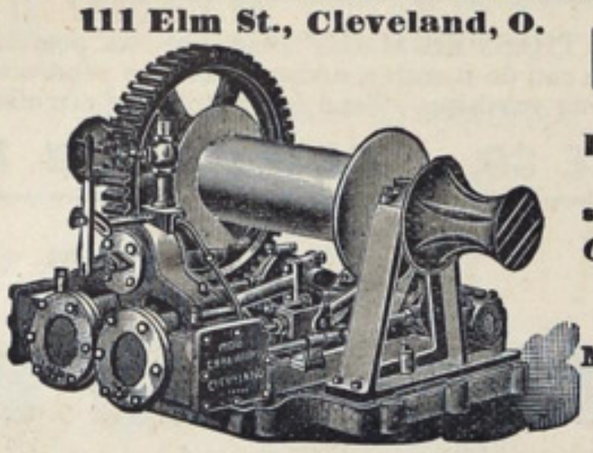

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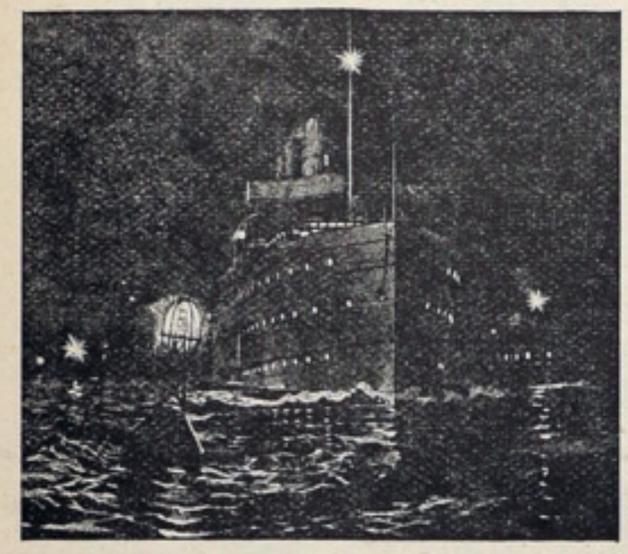

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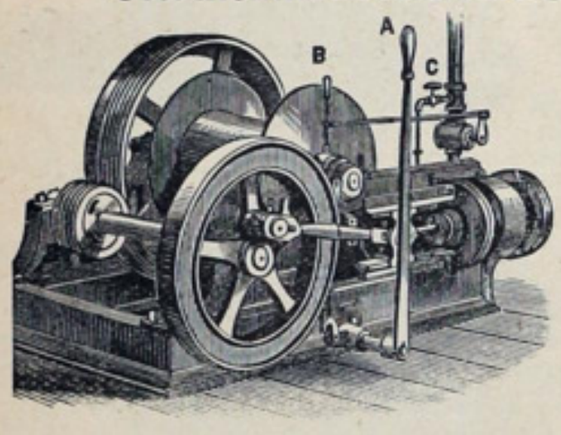

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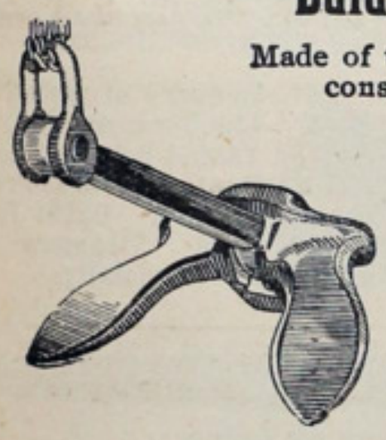

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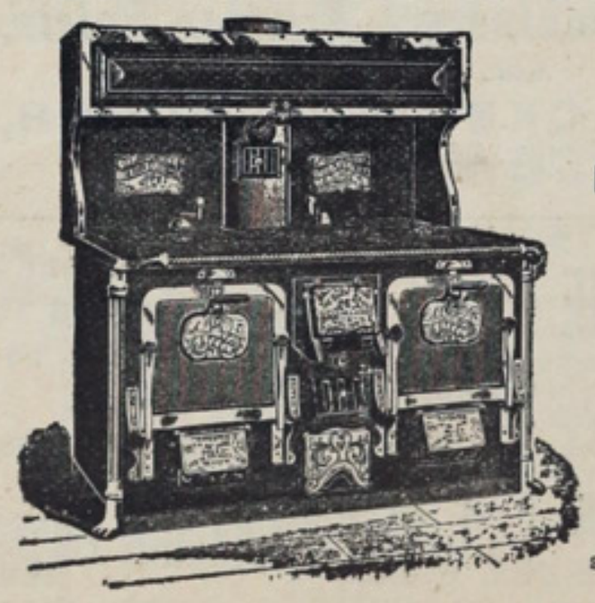

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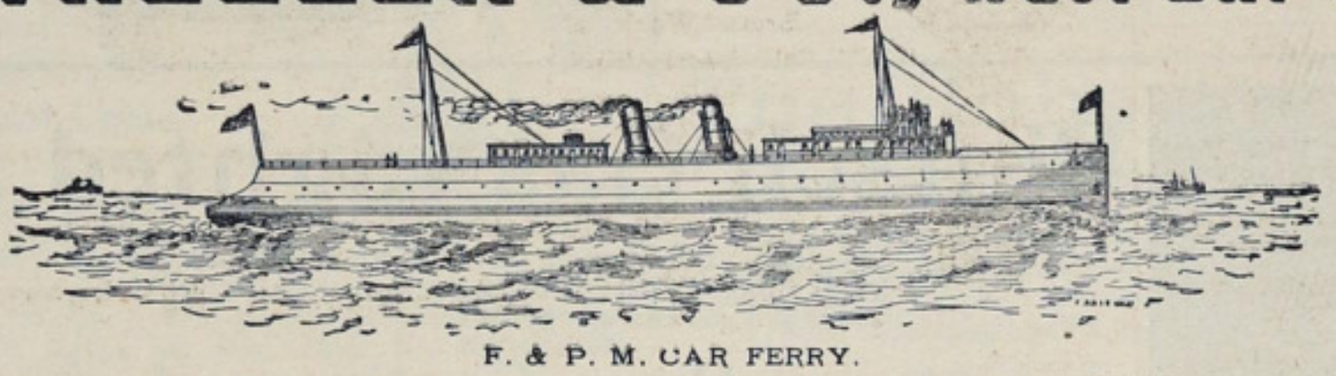

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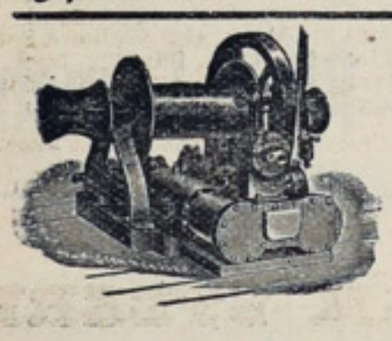

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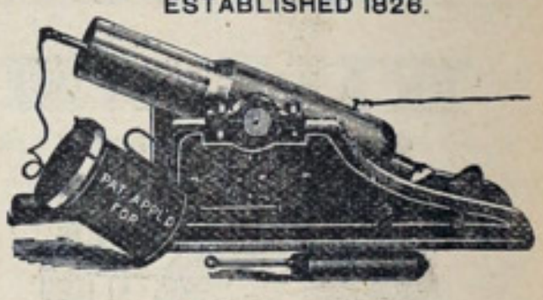

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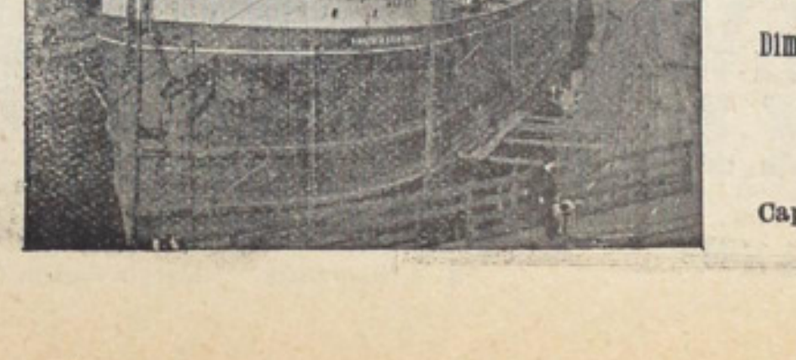

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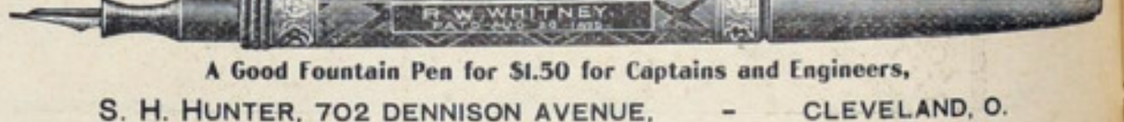

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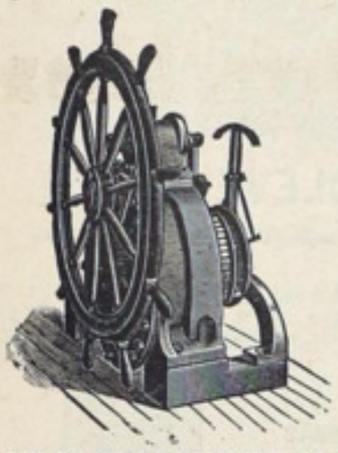

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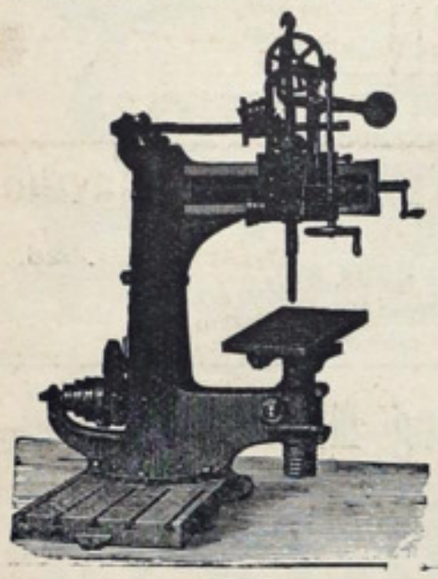

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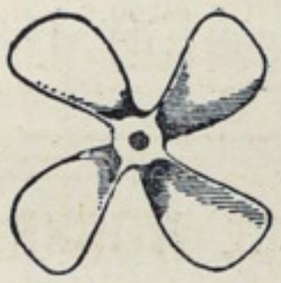

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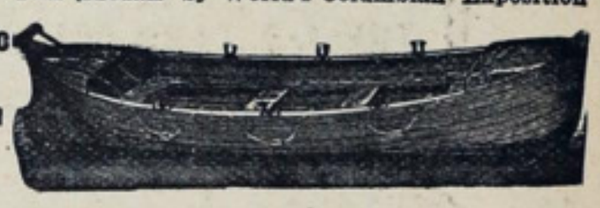

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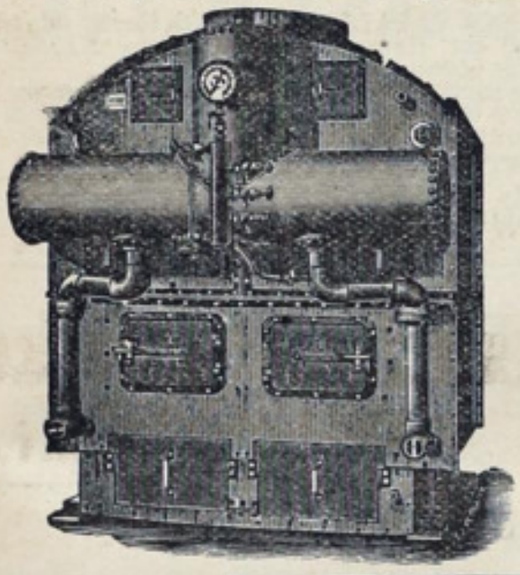

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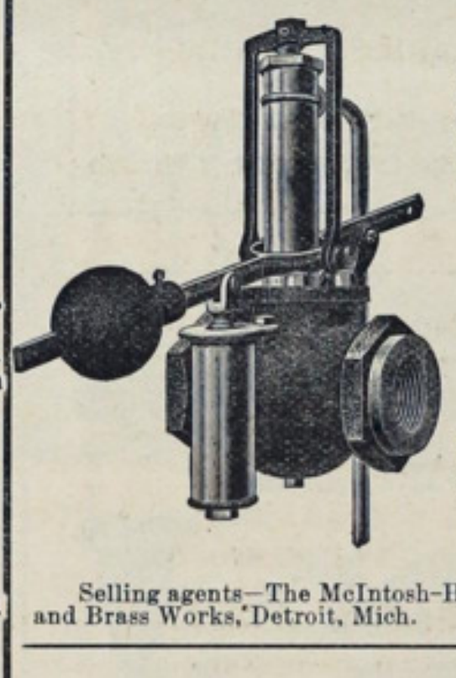

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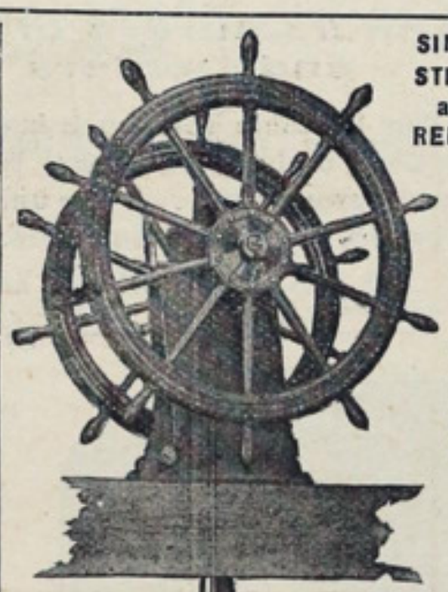

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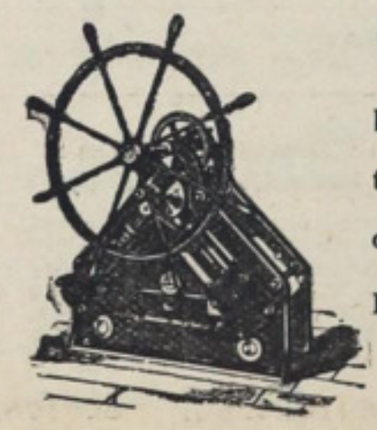

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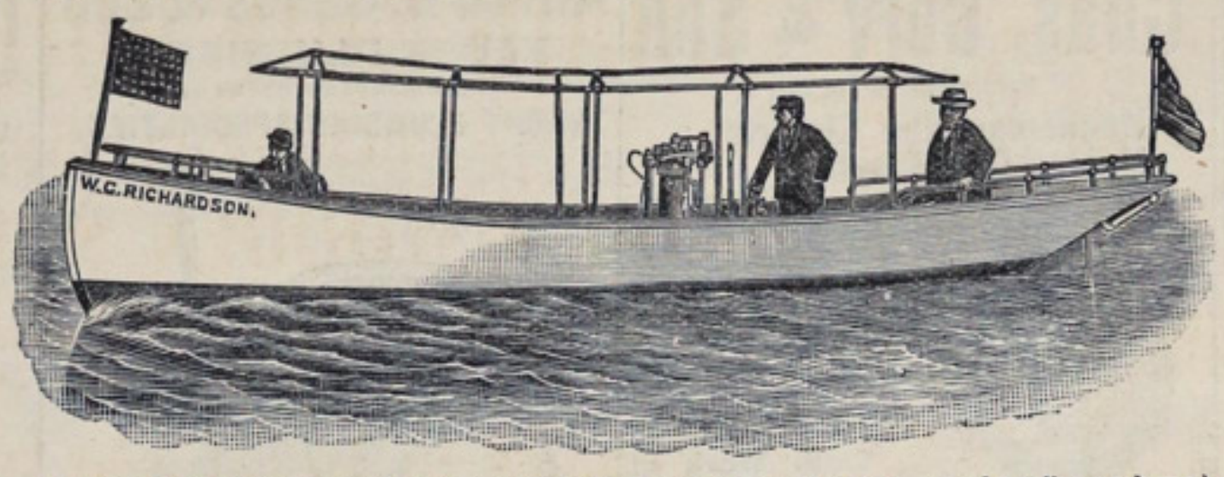

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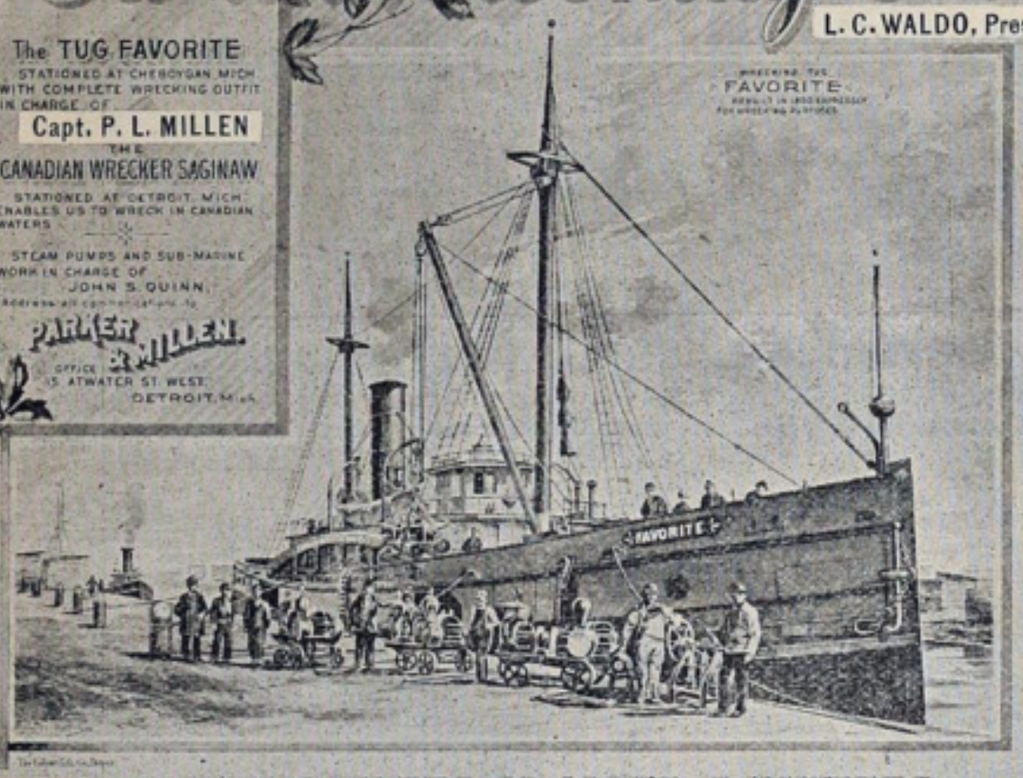

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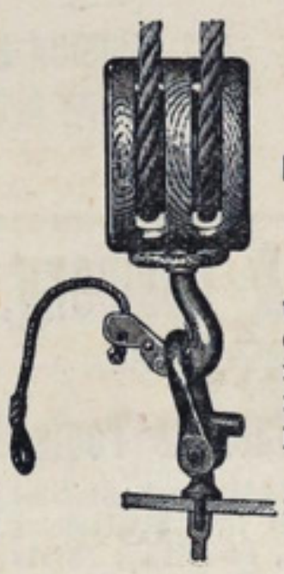

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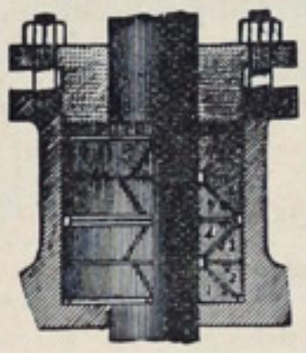

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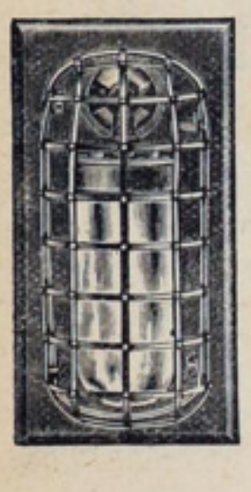

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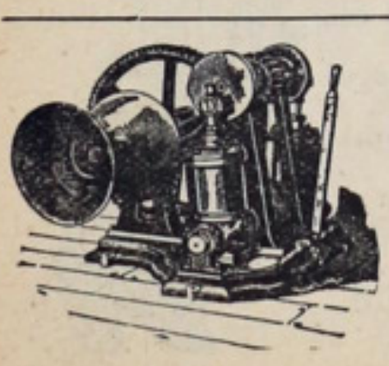

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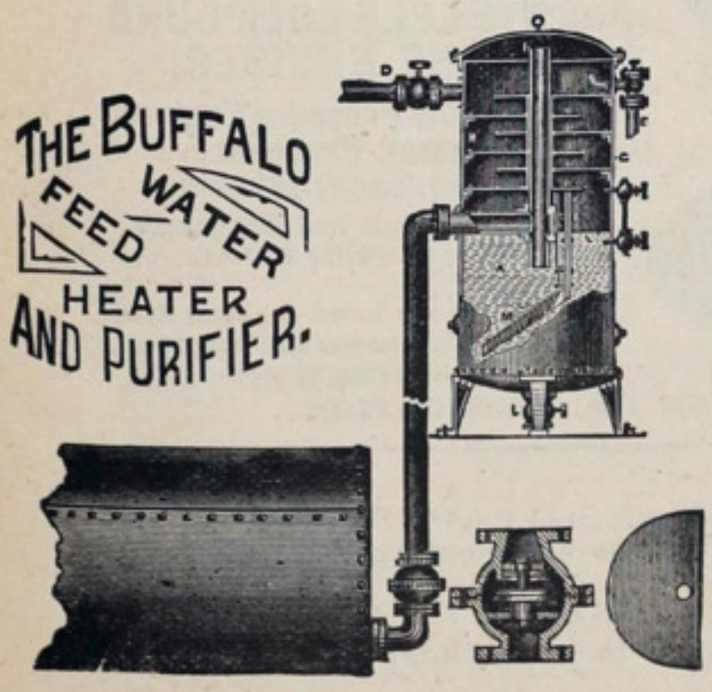

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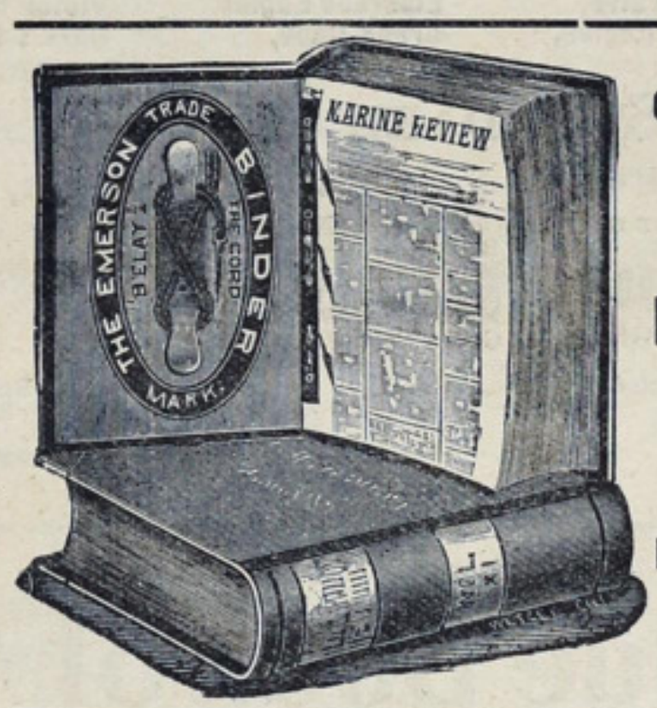

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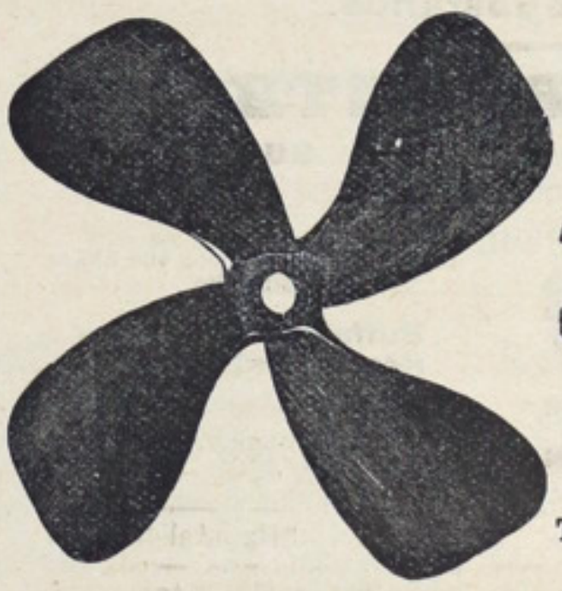

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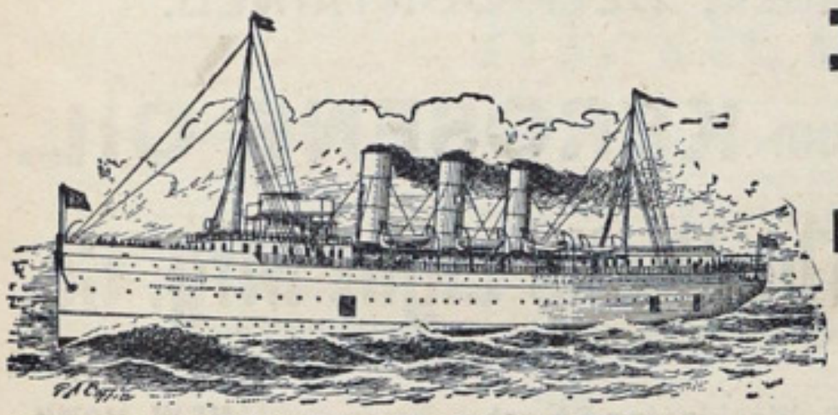

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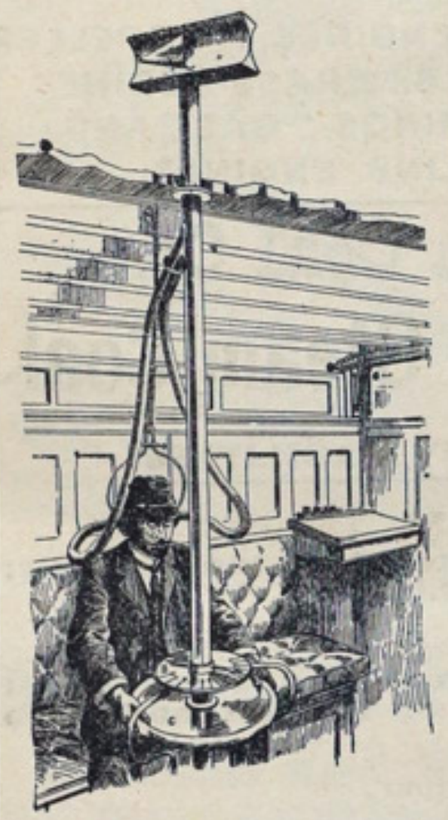

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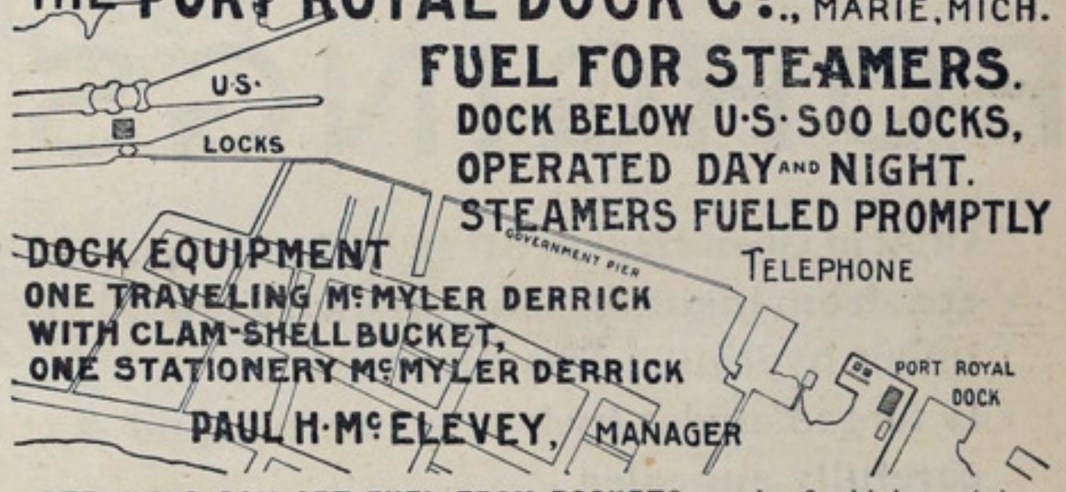

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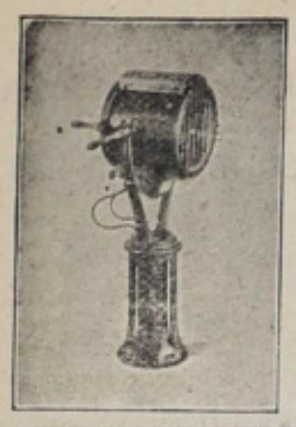

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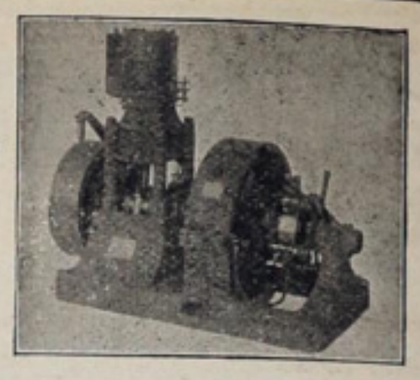

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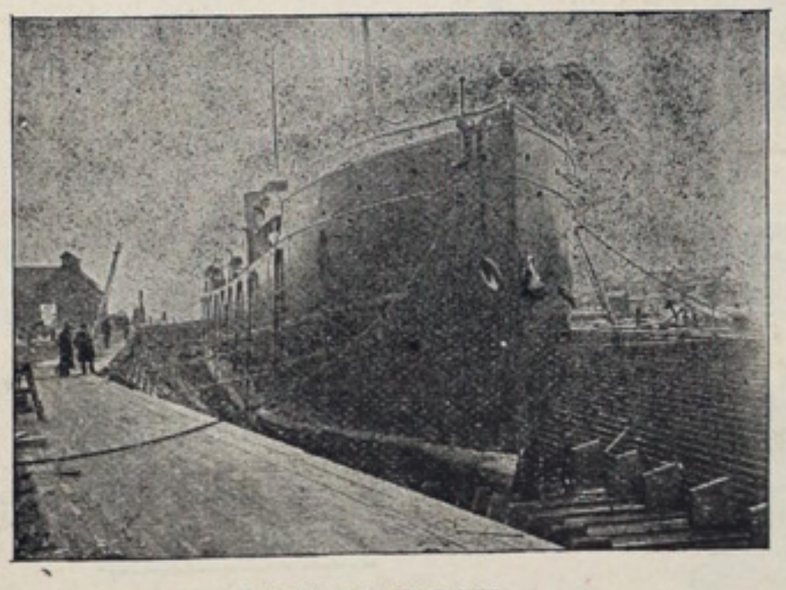

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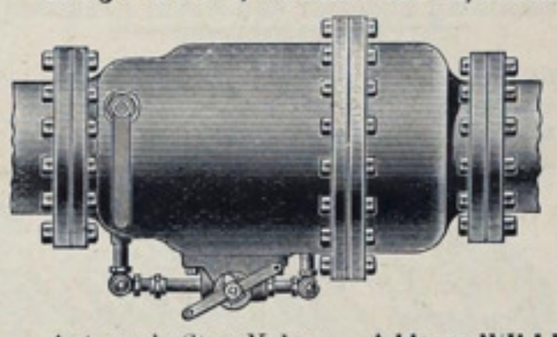

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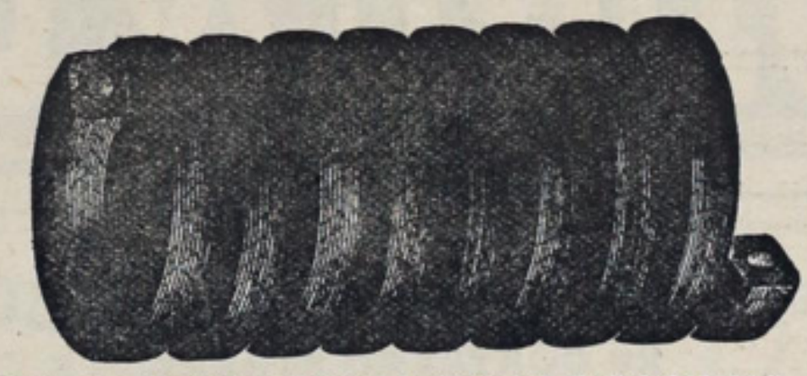

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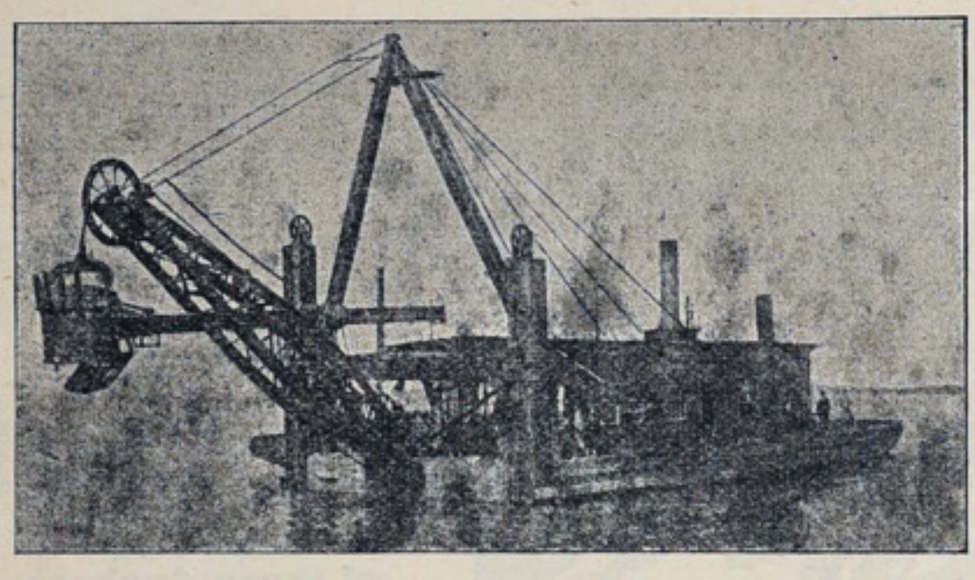

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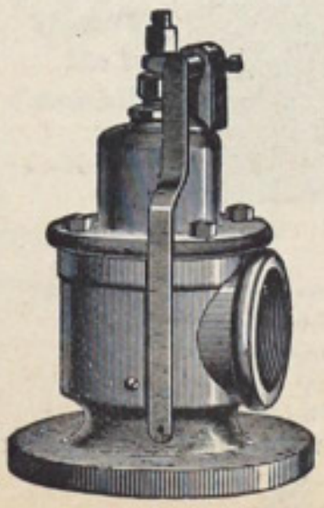

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